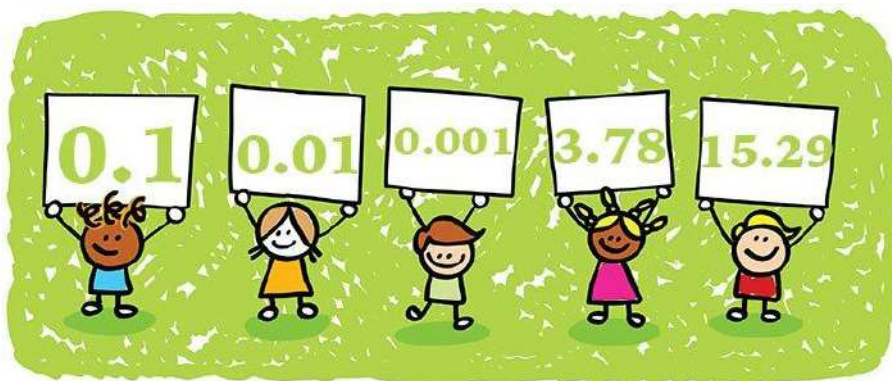
MATHEMATICS
PRIMARY FIVE
FIRST TERM
0.1
0.01
0.001
3.78
15.29

Theme (1) | Number Sense and Operations

Unit (1) | Decimal Place Value and Computation

Concept (1) | Decimals to the Thousandths Place

(1) Decimals to the Thousandths Place 5
(2) Place Value Shuffle 11
(3) Composing and Decomposing Decimals 15
(4) Comparing Decimals 17
(5) Rounding Decimals 18

Concept (2) | Adding and Subtracting Decimals

(6) Estimating Decimal Sums 23
(7) Modeling Decimal Addition 24
(8) Modeling Decimal Subtracting 29
(9) Estimating Decimal Differences 30
(10) Subtracting to the Thousandths Place 30
(11) Decimal Story Problems 31

Unit (2) | Number Relationships

Concept (1) | Expressions, Equations and the Real World

(1) Expressions, Equations and Variables 37
(2) Variables in Equations 38
(3) Telling Stories with Numbers 39

Concept (2) | Factors and Multiples

(4) Prime Factorization 42
(5) Greatest Common Factor (GCF) 45
(6) Identifying Multiples 49
(7) Least Common Multiple (LCM) 50
(8) Factors or Multiples? 53

Unit (3) | Multiplication with Whole Numbers

Concept (1) | Multiplying by a 2-Digit Number

(1) Using the Area Model to Multiply 59
(2) The Distributive Property of Multiplication 61
(3) Multiplying by a 2-Digit Number Using the Algorithm 63
(4) Multiplying Multi-Digit Numbers 64
(5) Multiplication Problems in the Real World 65

Theme (2) | Mathematical Operations and Algebraic Thinking

Unit (4) | Division with Whole Numbers

Concept (1) | Models for Division

(1) Dividing by a 2-Digit Number 70
(2) Estimating Quotients 71

Concept (2) | Dividing by 2-Digit Divisors

(3) Using the Division Algorithm 73
(4) The Relation between Division and Multiplication 75
(5) Multistep Story Problems 75

Unit (5) | Multiplication and Division with Decimals

Concept (1) | Multiplying Decimals

(1) Multiplying by Power of ten 80
(2) Multiplying Decimals by Whole Numbers 81
(3) Multiplying Tenths by Tenths 81
(4) Multiplying Decimals Using the Area of a Rectangle Model 82
(5) Multiplying Decimals through the Hundredths Place 84
(6) Multiplying Decimals through the Thousandths Place 84
(7) Decimals and the Metric System 85
(8) Measurement, Decimals and Powers of Ten 87
(9) Solving Multistep Story Problems 88

Concept (2) | Dividing Decimals

(10) Dividing by Powers of Ten 91
(11) Patterns and Relationships in Powers of Ten 92
(12) Dividing Decimals by Whole Numbers 93
(13) Dividing Decimals by Decimals 93

Unit (6) | Numerical Expressions and Patterns

Concept (1) | Evaluating Numerical Expression and Patterns

(1) Order of Mathematical Operations 98
(2) Numerical Expressions with Parentheses 99
(3) Writing Expressions to Represent Scenarios 100
(4) Identifying Numerical Patterns 102

UNIT
1

Theme 1 | Number Sense and Operations

Unit 1
Decimal Place Value and Computation

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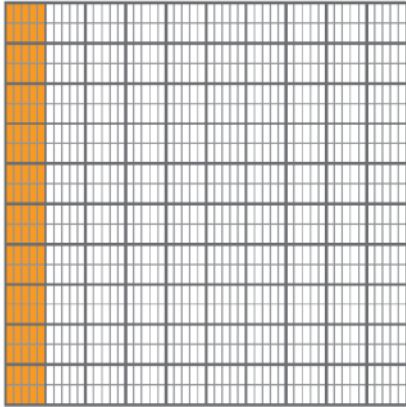
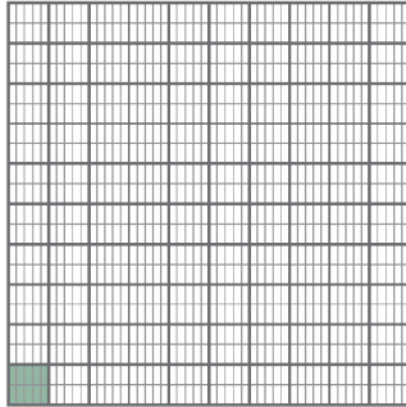
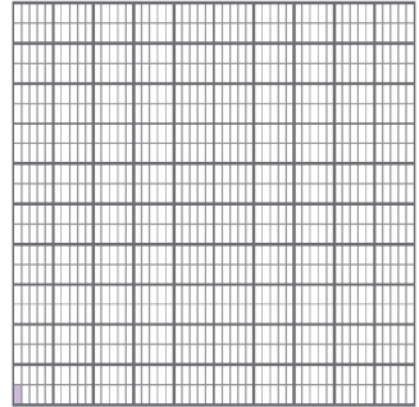
Concept (1-1)
Decimals to the Thousandths Place

Lesson (1) Decimals to the Thousandths Place

1 Tenth

1 Hundredth

1 Thousandth

I'm in the hundreds place

My value is 100

I'm in the tens place

My value is 30

I'm in the ones place

My value is 4

I'm the decimal point

I'm in the tenths place

My value is 0.7 or $\frac{7}{10}$

I'm in the hundredths place

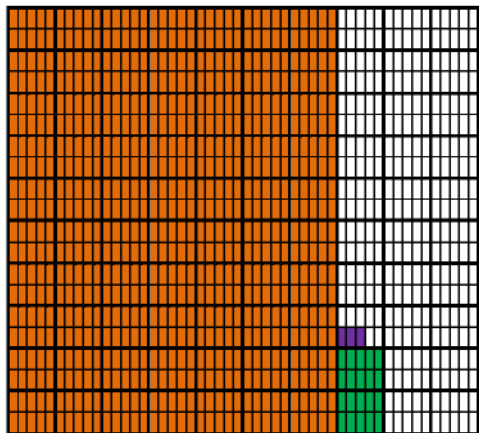
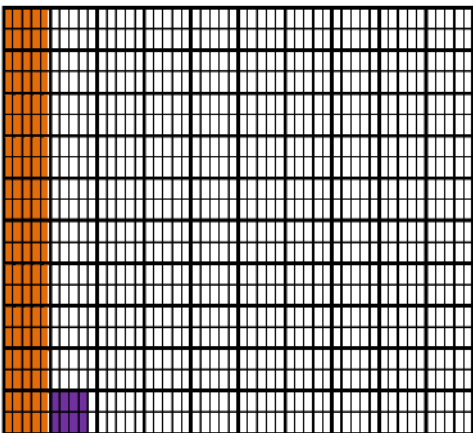
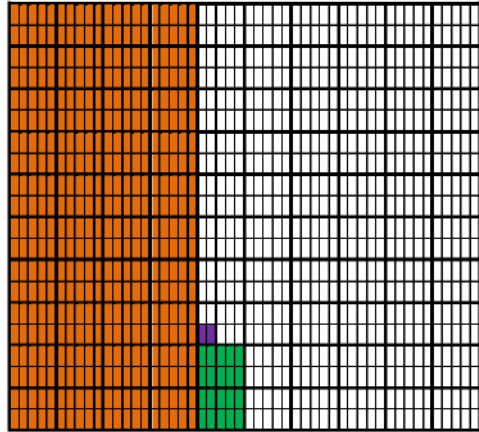
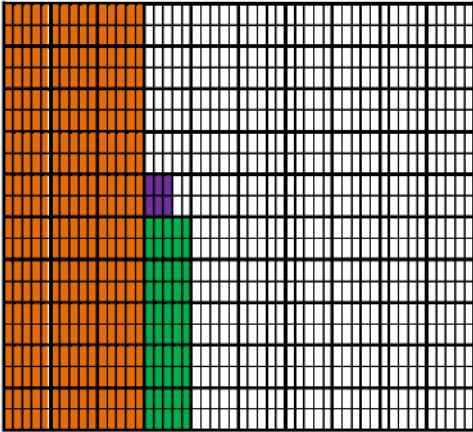
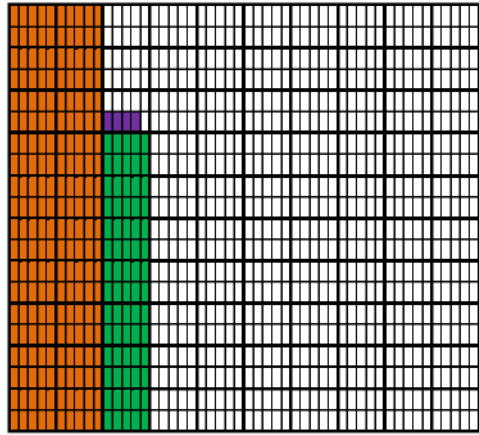
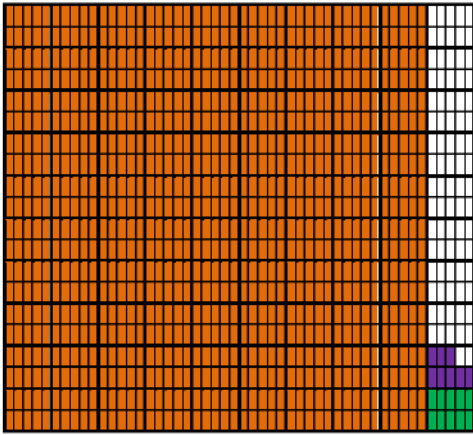
My value is 0.08 or $\frac{8}{100}$

I'm in the thousandths place

My value is 0.009 or $\frac{9}{1000}$

hundreds tens ones tenths hundredths thousandths

154.123

[1] Write the decimal fraction:

Remember:

0.4 , 0.40 and 0.400 are all equivalent

[2] Write the following numbers in the standard form:

1) Seven tenths = ...
2) Three tenths = ...
3) Seven thousandths = ...
4) Twenty four hundredths = ...
5) Three hundred fifty one hundredths = ...
6) Four and seven tenths = ...
7) Twenty and three hundredths= ....
8) Three hundred sixty four hundredths = ...
9) Ninety one and one thousandths = ...
10) Six hundred thirty five and nine tenths = ...

[3] Write the following decimals in the word form:

1) 0.3 = ...
2) 0.05 = ...
3) 0.34 = ...
4) 0.238 = ...
5) 3.7 = ...

[4] Complete the table:

Number	thousands	hundreds	tens	ones	decimal point	tenths	hundredths	thousandths
5.6					.			
27.98					.			
123.8					.			

[5] Circle the tenths digit:

36.85 - 78.2 - 636.4 - 1.124 - 0.024

[6] Circle the tens digit:

65.78 - 987.2 - 16.147 - 5644.2 - 102.6

[7] Circle the hundredths digit:

36.85 - 3.156 - 99.123 - 0.546

[8] Write the value of the red digit:

0.247 4.158 23.425 45.56 0.024

....

[9] Write the value of the red digit:

36.85 79.2 638.4 1.324

....

Write the following number in the place value table:

Six hundred forty two thousands, five hundred and eighty one hundredths.

Milliards	Millions			Thousands			Ones			Decimal Point	The decimal fraction	
Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths

Complete the following as in the example:

• **Example:** 0.516 consists of five tenths, one hundredth and six thousandths.

a) 0.837 consists of .... tenths, ... hundredths, ... thousandths.

b) 0.945 consists of .... tenths, ... hundredths, ... thousandths.

Write the following digits in the place value table to form:

a) the greatest decimal number b) the smallest decimal number

7 , 3 , 6 , 0 , 2 , 1 , 4 , 9 , 2 , 7

	Millions			Thousands			Ones			Decimal Point	The decimal fraction	
	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths
The greatest												
The smallest												

Choose the correct answer:

a) Forty three thousandths =

1) 0.430 2) 0.043 3) 3.040 4) 340.000

b) Two hundred seven thousandths =

1) 0.207 2) 0.702 3) 2.007 4) 207.000

c) Three tenths and 8 thousandths =

1) 0.308 2) 0.830 3) 0.038 4) 30.008

d) 6 tenths, 5 thousandths and four hundredths =

1) 60.405 2) 0.645 3) 0.546 4) 0.654

Answer the following:

a) In 734.28: the place value of 8 is .... and its value is ....

b) In 452.09: the place value of 5 is .... and its value is ....

c) In 675.42: the place value of 6 is .... and its value is ....

d) In 9,073.62: the place value of 9 is .... and its value is ....

Complete the following as in the example:

- **Example:** 0.6 = 0.60 = 0.600
  6 tenths = 60 hundredths = 600 thousandths

a) 0.700 = 0. .... = 0.7

b) 0.400 = 0.40 = 0. ....

c) 0.900 = 0.90 = 0. ....

d) 0. .... = 0.50 = 0.5

Complete the following:

a) 3 tenths = ... hundredths = ... thousandths.

b) .... tenths = 50 hundredths = ... thousandths.

c) .... tenths = ... hundredths = 700 thousandths.

Lesson (2) Place Value Shuffle

Ten Is a Powerful Number Use the place value charts to solve each problem. in the blanks to show how the value of each digit also changed. An example is shown.

Example: $57 \times 10 =$

Thousands	Ones			•	Decimals	
O	H	T	O	•	Tenths	Hundredths
		5	7	•	0	0
	5	7	0	•	0	0

The value of the whole number increased by a factor of 10.

The value of the 5 increased by a factor of 10 from 50 to 500.

The value of the 7 increased by a factor of 10 from 7 to 70.

1. $57 \div 10 =$

Thousands	Ones			•	Decimals	
O	H	T	O	•	Tenths	Hundredths

2. The value of the whole number ______________ (increased/decreased) by a factor of 10.

The value of the ______________ (first digit) ______________ (increased/decreased) by a factor of 10 from ______________ to ______________.

The value of the ______________ (second digit) ______________ (increased/decreased) by a factor of 10 from ______________ to ______________.

3. $6.5 \times 10 =$

Thousands	Ones			•	Decimals	
O	H	T	O	•	Tenths	Hundredths

4. The value of the whole number ______________ (increased/decreased) by a factor of 10.

The value of the ______________ (first digit) ______________ (increased/decreased) by a factor of 10 from ______________ to ______________.

The value of the ______________ (second digit) ______________ (increased/decreased) by a factor of 10 from ______________ to ______________.

5. $345 \div 10 =$

Thousands	Ones			•	Decimals	
O	H	T	O	•	Tenths	Hundredths

6. The value of the whole number ______________ (increased/decreased) by a factor of 10.

The value of the ______________ (first digit) ______________ (increased/decreased) by a factor of 10 from ______________ to ______________.

Homework

[1] Write the following numbers in the standard form:

1) Two hundredths = ...
2) Sixteen hundredths = ...
3) Forty five tenths = ...
4) Nineteen thousandths = ...
5) Five hundred sixty nine thousandths = ...
6) Eighty five and sixty one thousandths = ...
7) Fifty two and thirty one thousandths = ...
8) Seventeen and forty four thousandths = ...

[2] Write the following decimals in the word form:

1) 0.1 = ...
2) 0.008 = ...
3) 0.047 = ...
4) 2.5 = ...
5) 32.8 = ...

[3] Complete the table:

Number	thousands	hundreds	tens	ones	decimal point	tenths	hundredths	thousandths
6.47					.			
456.2					.			
36.123					.			

[4] Circle the tenths digit:

864.2 - 88.6 - 978.2 - 9.687 - 0.008

[5] Circle the tens digit:

13.75 - 33.54 - 25.115 - 9936.5 - 300.7

[6] Circle the hundredths digit:

986.05 - 60.001 - 0.01 - 7.123

[7] Write the value of the red digit:

8.451   6.247   36.214   4.2   2.4

....

[8] Write the value of the red digit:

867.2   98.6   578.2   9.682

....

Choose the correct answer:

1. Five hundredths = ...
   - a) 50
   - b) 500
   - c) 0.5
   - d) 0.05
2. The shaded part in the opposite figure is ....
   - a) 2
   - b) 0.2
   - c) 0.8
   - d) 8
3. In the numeral form 7,605,219,834 the place value of the digit 7 is ....
   - a) ones
   - b) millions
   - c) thousands
   - d) milliards
4. In the numeral form 9,243,618,075 the value of the digit 9 is ....
   - a) 9,000,000
   - b) millions
   - c) milliards
   - d) 9,000,000,000

Use the place-value charts to solve each problem. Fill in the blanks to show how the value of each digit also changed.

a. 5.8 × 10

Thousands	Ones			.	Decimals	
O	H	T	O	.	Tenths	Hundredths
				.		
				.		

- The value of the whole number ________ (increased / decreased)
- The value of the 5 (increased / decreased) when multiplying by 10 from ________ to ________
- The value of the 8 (increased / decreased) when multiplying by 10 from ________ to ________

b. 942 ÷ 100

Thousands	Ones			.	Decimals	
O	H	T	O	.	Tenths	Hundredths
				.		
				.		

- The value of the whole number ________ (increased / decreased)
- The value of the 9 (increased / decreased) when dividing by 100 from ________ to ________
- The value of the 2 (increased / decreased) when dividing by 100 from ________ to ________

Lesson (3) Composing and Decomposing Decimals

• You can decompose 843.572 in different ways using place-value chart :

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths
	8	4	3	.	5	7	2

▸ 1st way (expanded form) :

843.572 = 800 + 40 + 3 + 0.5 + 0.07 + 0.002

▸ 2nd way :

843.572 = 843 + 0.572

▸ 3rd way :

843.572 = 843 + 0.5 + 0.07 + 0.002

There are many answers that equal 843.572 when composed.

For each problem, record the number in the place value chart.
decompose the number in expanded form and then in two other ways.

1. 34.527

Thousands	Ones			•	Decimals		
O	H	T	O	•	Tenths	Hundredths	Thousandths

1st way (expanded form): ______________________________

2nd way: ______________________________

3rd way: ______________________________

2. 21.045

Thousands	Ones			•	Decimals		
O	H	T	O	•	Tenths	Hundredths	Thousandths

1st way (expanded form): ____________________

2nd way: ____________________

3rd way: ____________________

3. 14.932

Thousands	Ones			•	Decimals		
O	H	T	O	•	Tenths	Hundredths	Thousandths

1st way (expanded form): ____________________

2nd way: ____________________

3rd way: ____________________

Lesson (4) Comparing Decimals

Compare each set of numbers using the symbols for greater than (>), less than (<), or equal to (=).

1. 29.9° _____ 30.2°
2. 36.5° _____ 35.6°
3. 40.5° _____ 41.0°
4. 35.2° _____ 34.7°
5. 38.80° _____ 38.8°

Select the largest number:

1.401 1.341 1.440 1.055 1.3 1.30 1.28 1.49

Select the smallest number:

20.09 20.1 20.001 20.011 20.10 20.010 20.9 20.21

Lesson (5) Rounding Decimals

Round the following numbers to the nearest unit (whole number):

a) 53.2 ≈ ....
b) 248.7 ≈ ....
c) 437.86 ≈ ....
d) 396.5 ≈ ....
e) 229.65 ≈ ....
f) 699.53 ≈ ....

Round the following numbers to the nearest tenth:

a) 785.235 ≈ ....
b) 678.093 ≈ ....
c) 36.348 ≈ ....
d) 593.35 ≈ ....
e) 618.765 ≈ ....
f) 512.075 ≈ ....
g) $196\frac{57}{1,000}$ ≈ ....
h) $243\frac{745}{1,000}$ ≈ ....

Round the following numbers to the nearest hundredth:

a) 976.526 ≈ ....
b) 274.374 ≈ ....
c) 349.025 ≈ ....
d) 493.608 ≈ ....
e) 278.985 ≈ ....
f) 0.997 ≈ ....

1. A farmer is building a new fence for her sheep field. She wants to build a fence around the whole field. Estimate how much fencing you think she will need by rounding each dimension to the nearest Tenth. Explain your thinking.

125.45 m

89.52 m

2. Mazen is planning a trip from Cairo to the waterfall region in Wadi El Rayan. He will travel 147.72 kilometers. Round the distance to the nearest Tenth.

3. Mazen stops to have a snack and stretch after driving 73.255 kilometers. Round the distance to the nearest Hundredth.

4. Fill in the chart as you round the decimal to the stated place value.

Number	Round to the nearest whole number	Round to the nearest Tenth	Round to the nearest Hundredth
56.284			

Homework

For each problem, record the number in the place value chart.
decompose the number in expanded form and then in two other ways.

4. 231.128

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths

1st way (expanded form): ______________________

2nd way: ______________________

3rd way: ______________________

5. 508.17

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths

1st way (expanded form): ______________________

2nd way: ______________________

3rd way: ______________________

Compare using ">, < or =".

a. 3.204 ◯ 3.24 | b. 19.2 ◯ 19.200

c. 20.7 ◯ 20.077 | d. 1.01 ◯ 1.099

e. 9.08 ◯ 9.079 | f. 14.010 ◯ $14\frac{9}{10}$

g. 4.12 ◯ 4 + 0.1 + 0.007 | h. 5 thousandths ◯ 0.500

Choose the correct answer.

1. 3.24 ◯ 3.239
   A. > B. < C. =

2. Which of the following is greater than 1.72 ?
   A. 1.27 B. 1.07 C. 1.8 D. 1.072

3. 19 hundredths ◯ 19 thousandths

   A. > B. < C. =

4. Which of the following is true ?
   A. 0.532 > 0.537 B. 0.1 + 3 < 1.3 C. 1.019 > 1.1 D. $\frac{18}{10} = 1.8$

5. 4 + 0.2 + 0.05 + 0.007 ◯ 4257 hundredths
   A. > B. < C. =

6. 3.408 $\frac{348}{100}$
   A. > B. < C. =

7. 14.1 ▢ 7 > 14.158
   A. 3 B. 4 C. 5 D. 6

Round each of the following numbers to the nearest whole number.

a. 0.7 ≈ ………… | b. 0.215 ≈ ………… | c. 0.512 ≈ …………

d. 9.9 ≈ ………… | e. 51.56 ≈ ………… | f. 10.18 ≈ …………

g. 600.601 ≈ ………… | h. 0.999 ≈ ………… | i. 0.009 ≈ …………

Round each of the following numbers to the nearest Tenth.

a. 13.75 ≈	b. 83.914 ≈	c. 90.09 ≈ ....
d. 0.208 ≈	e. 43.95 ≈	f. 3.92 ≈ ....
g. 170.597 ≈	h. 0.07 ≈	i. $502\frac{37}{100}$ ≈ ....

Round each of the following numbers to the nearest Hundredth.

a. 76.514 ≈	b. 52.608 ≈	c. 52.1248 ≈ ....
d. 0.737 ≈	e. 0.996 ≈	f. $3\frac{8}{1000}$ ≈ ....

Round each of the following numbers to the nearest Thousandth.

a. 2.0509 ≈	b. 0.0474 ≈	c. 4.6798 ≈ ....
d. 19.9996 ≈	e. 0.0004 ≈	f. 0.9986 ≈ ....

Round each number to the place of the underlined digit.

a. $8.14\underline{3}7$ ≈	b. $5\underline{2}.5$ ≈	c. $35.1\underline{0}72$ ≈ ....
d. $17.\underline{9}7$ ≈	e. $55.5\underline{2}4$ ≈	f. $1.56\underline{9}8$ ≈ ....
g. $2.43\underline{5}5$ ≈	h. $\underline{0}.215$ ≈	i. $1.5\underline{9}5$ ≈ ....

Concept (1-2)
Adding and Subtracting Decimals

Lesson (6) Estimating Decimal Sums

Estimation Strategies (Try to use as many as you can.)		
Front-End Estimation Round to Ones	Benchmark Decimals Round to Tenths	Separate Wholes and Parts Round to Hundredths

1. 3.451 + 8.091

   Estimate: ____________

2. 9.98 + 4.56

   Estimate: ____________

3. 4.981 + 5.019

   Estimate: ____________

4. Samar wanted to ride her bike 40 kilometers this week. By Thursday she had ridden 34.99 kilometers. On Friday she rode 4.01 kilometers. Estimate to see if she has met her goal.

   Estimate: ____________

5. Taha has 54.20 LE. His brother has 45.75 LE. They want to combine their money to purchase a box of apples for 100 LE. Estimate to see if they have enough money.

   Estimate: ____________

Lesson (7) Modeling Decimal Addition

The Nile is the largest river system in the world. The Nile flows north more than 6,650 kilometers into the Mediterranean Sea, and 95 percent of Egyptians live within a few kilometers of the river. The Nile has two main tributaries: The White Nile and the Blue Nile that flow into the river. The confluence of these rivers is in Khartoum, Sudan, where they join to form the Nile. The river then flows north where it meets the Mediterranean Sea.

You are traveling from where the Nile River meets the Mediterranean Sea to the confluence of the Blue and White Nile in Khartoum. This is a distance of 2,406.69 kilometers.

1. Round 2,406.69 to the nearest Thousand.
2. Round 2,406.69 to the nearest Hundred.
3. Round 2,406.69 to the nearest One.
4. Round 2,406.69 to the nearest Tenth.

1. Record 0.97 and 0.42 in the place value chart.

Thousands	Ones			•	Decimals	
O	H	T	O	•	Tenths	Hundredths

2. Evaluate: 0.97 + 0.42 = ____________

Add using the place value chart:

1 456.25 + 23.028 = ...

Thousands	Ones			•	Decimals		
O	H	T	O	•	Tenths	Hundredths	Thousandths

2 9,586.35 + 892 .9 = ...

Thousands	Ones			•	Decimals		
O	H	T	O	•	Tenths	Hundredths	Thousandths

3 32.56 + 1,856.996 = ...

Thousands	Ones			•	Decimals		
O	H	T	O	•	Tenths	Hundredths	Thousandths

5.6 3.1 2.65 9.3 0.7 1.24 8.2 0.1 2.2 0.12 7.7 0.3

4 6,245.7 + 36.578 = ...

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths

Find the result:

a 14.63 + 34.25 = ...

b 17.3 + 4.6 = ...

c 2.536 + 1.203 = ...

d 0.875 + 0.43 = ...

e 2.65 + 9.3 = ...

f 89.75 + 4.34 = ...

g 2.536 + 0.203 = ...

h 5.42 + 3.362 = ...

i 72.7 + 65.31 = ...

j 381.5 + 76.53 = ...

Complete the missing digits:

a

```
    3 . □ 7
+   6 . 5 □
-----------
    □ . 8 9
```

b

```
    1 . □ 6
+   3 . 3 □
-----------
    □ . 3 3
```

c

```
    3 . 2 □
+   5 . □ 3
-----------
    □ . 7 3
```

d

```
    9 7 . 4 8
+   4 3 . □ □
-------------
  □ □ □ . 9 3
```

Homework

Add using the place value chart:

ⓐ 0.8 + 3.09 = ...

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths

ⓑ 0.245 + 3.89 = ...

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths

ⓒ 4.028 + 2.83 = ...

Thousands	Ones			.	Decimals		
O	H	T	O	.	Tenths	Hundredths	Thousandths

Find the result of each of the following.

a. 0.231 + 0.754	b. 2.53 + 0.19	c. 4.89 + 0.87
d. 16.34 + 8.79	e. 7.51 + 6.492	f. 967.63 + 91.2
g. 48.42 + 59.096	h. 35.001 + 14.999	i. 4.15 + 8.6 + 9.283

Find the result:

k 14.78 + 2.5 = ...

l 30.33 + 3.3 = ...

m 7.7 + 8.005 = ...

n 22.3 + 11.415 = ...

o 271.306 + 3.5 = ...

p 205.7 + 99.103 = ...

q 1.007 + 9 = ...

r 13 + 2.65 = ...

s 48.005 + 24.25 = ...

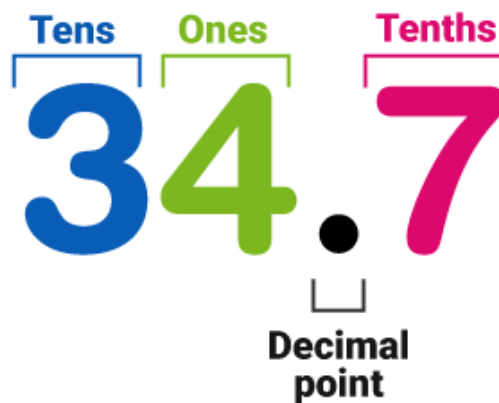
t 100 + 47.85 = ...

u 17.007 + 12.07 = ...

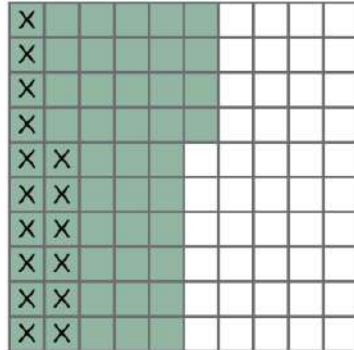
v 213.01 + 27.99 = ...

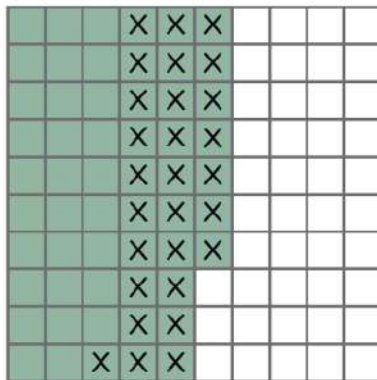
Tens Ones Tenths

34.7

Decimal point

Lesson (8) Modeling Decimal Subtracting

1. The shaded minuend is a decimal number. The *x*'s represent the subtrahend, the number that is subtracted from the minuend. Use the model to solve the subtraction problem.

____________ – ____________ = ____________

Write an expression to match the model. Then, use the model to evaluate the expression.

____________ – ____________ = ____________

Record the problem in the place value chart: 0.2 – 0.05 = ________.

Thousands	Ones			•	Decimals		
O	H	T	O	•	Tenths	Hundredths	Thousandths

Use the model or place value chart to evaluate the expression:

0.2 – 0.05 = ________.

Lesson (9) Lesson (10)

Estimating Decimal Differences Subtracting to the Thousandths Place

Estimate each of the following.

a. 0.92 – 0.76 **b.** 17.01 – 13.9 **c.** 140.61 – 99.43

1. 2.419 – 1.240 Estimate: ______

2. 35.9 – 10.8 Estimate: ______

3. Estimate: 29.98 – 11.99 ________

4. Evaluate: 29.98 – 11.99 = ________

Find the result of each of the following.

a. 5.473 – 3.362 = ...

b. 2.536 – 1.203 = ...

c. 6.4 – 5.378 = ...

d. 100 – 47.85 = ...

e. 0.9 – 0.889 = ...

f. 12.74 – 0.359 = ...

Choose the correct answer.

1. 137.234 – 37.04 = ...
   - A. 133.530
   - B. 99.166
   - C. 100.194
   - D. 100.230

2. 45.9 – 20.76 estimate ....
   - A. 18
   - B. 25
   - C. 31
   - D. 35

3. 7 Tenths – 7 Thousandths = ...
   - A. 0.693
   - B. 0.63
   - C. 6.3
   - D. Zero

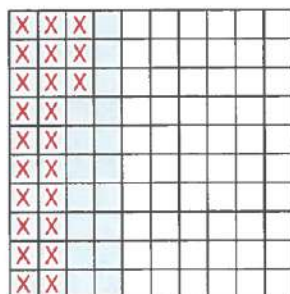
4. 24.5 – 18.92 = ...
   - A. 5.58
   - B. 5.63
   - C. 5.6
   - D. 6.5

5. 77.55 – 1.9 ◯ 76.21 – 0.8
   - A. >
   - B. <
   - C. =

6. 99.9 – 9.99 = ...
   - A. 90.09
   - B. 90.9
   - C. 89.19
   - D. 89.91

7. 94.▢8 – 9.82 = 84.46
   - A. 1
   - B. 2
   - C. 3
   - D. 4

8. 9 – 4.653 = ...
   - A. 5.347
   - B. 4.347
   - C. 3.347
   - D. 5.653

9. Which of the following expressions represents the model?
   - A. 0.23 – 0.04
   - B. 0.4 – 0.23
   - C. 0.04 – 0.023
   - D. 40 – 23

10. 9.3 – .... = 8.254
    - A. 1.146
    - B. 1.46
    - C. 1.046
    - D. 17.554

Lesson (11) Decimal Story Problems

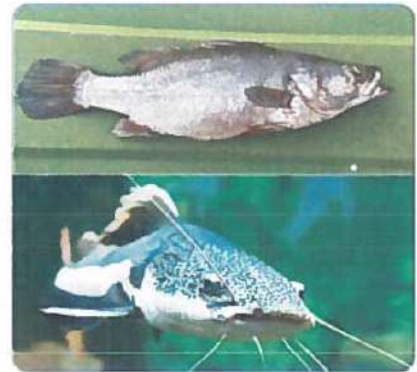
Mazen has 35 L.E. He bought a ball for 9.75 L.E. and a book for 840 P.T.

How much money was left with Mazen ?

Hanaa has 200 pounds. She wants to buy a pair of shoes for 99.8 L.E. , a bag for 45.75 L.E. and a dress for 70.25 L.E.

Can she buy all what she wants ? Why ?

Nile perch is 110 centimeters long and more than 5 years old. It weighs 113.39 kilograms and the vundu catfish weighs 38.1 kilograms and is 188 centimeters long.

What is the total mass of both the Nile perch and the vundu catfish ?

Wael has 14.75 pounds and his sister Mariam has 950 piasters.

Find the difference between what they have in pounds.

Homework

Complete the table.

The expression	Estimating difference	Actual difference
a. 3.94 – 1.23 =	....	....
b. 29.98 – 11.99 =	....	....
c. 0.97 – 0.82 =	....	....
d. 5.05 – 4.15 =	....	....
e. 4.45 – 4.32 =	....	....

Find the result of each of the following.

a.
$$\begin{array}{r} 0.781 \\ -\ 0.531 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 0.593 \\ -\ 0.194 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 0.5 \\ -\ 0.375 \\ \hline \end{array}$$

d.
$$\begin{array}{r} 3,218.975 \\ -\ 218.853 \\ \hline \end{array}$$

e.
$$\begin{array}{r} 4,524.62 \\ -\ 2,498.124 \\ \hline \end{array}$$

f.
$$\begin{array}{r} 4,611.3 \\ -\ 1,982.45 \\ \hline \end{array}$$

Mona has 3.95 L.E.

and Manal has 6.3 L.E.

How much do they have together ?

....

A man bought some goods for 306.7 L.E.

and sold them for 366.95 L.E.

Find his profit.

Ibrahim had 53.75 L.E. He spent 35.05 L.E.

Find the remainder with him.

Ali has 24.75 L.E. and Ahmed has $15\frac{1}{4}$ L.E.

Find how much money Ali and Ahmed have together.

Hossam has 4.25 L.E. and his sister

Hend has 980 P.T.

Find the difference between what they have in pounds.

Unit (1) Assessment

[1] Choose the correct answer:

(1) The place value of the digit 3 in the number 82.238 is ....

ⓐ tens ⓑ thousandths ⓒ tenths ⓓ hundredths

(2) The smallest number from the following is ....

ⓐ 990.89 ⓑ 991.01 ⓒ 990.9 ⓓ 990.790

(3) 259.54 ≃ .... (to the nearest whole number).

ⓐ 260 ⓑ 259.5 ⓒ 259 ⓓ 250

(4) Forty-five thousandths = ...

ⓐ 45,000 ⓑ 450,000 ⓒ 0.450 ⓓ 0.045

(5) 6.09 – 3.89 is estimated as ....

ⓐ 2.5 ⓑ 2 ⓒ 1.5 ⓓ 1

(6) 6.319 > ....

ⓐ 6.402 ⓑ 7.109 ⓒ 6.309 ⓓ 6.91

[2] Complete:

(1) 0.35 + 0.64 = ...

(2) 4.325 – 3.122 = ...

(3) 13.85 + 6.19 is estimated as ....

(4) 3 + 0.005 + 0.2 + 0.01 = ...

(5) 9.659 ≃ .... (to the nearest hundredth).

(6) If the value of 7 is 0.007, then its place value is ....

[3] Find:

(1) Saeed bought a trousers and a shirt. The price of the trousers is 58.75 pounds and he paid totally 130 pounds. What is the price of the shirt?

....

(2) Two pieces of gold: the weight of 1st is 3.89 kg and the weight of 2nd is 6.008 kg. Find the weight of the two pieces together.

....

(3) Arrange the following numbers from greatest to smallest:
1.425 – 1.005 – 3.425 – 3.125 – 2.04

....

UNIT
2

Theme 1 | Number Sense and Operations

Unit 2
Number Relationships

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Concept (2-1)
Expressions, Equations and the Real World

Lesson (1) Expressions, Equations, and Variables

Mathematical Expression	Equation
Mathematical expression is a statement contains numbers or numbers and symbols separated by one or more operations as : [+ , – , × and ÷] and doesn't contain the equal sign "=".	Equation is a mathematical expression contains the equal sign "=".
Examples: • $7.4 + 2.5 - 1.5$ • $49 - x - 24.5$ • $10 \times 3 \div 5$ • $42 \div k$ • $2.5 + m$ • $15 \div 3 \times 2$	**Examples:** • $24.8 - x = 17.5$ • $36.5 + 14.1 = k$ • $4.2 + 1.5 = 8.9 - 3.2$

1. Basma wanted to write an equation with a variable to represent "12.5 plus a number equals 15." Which of the following would be correct?

   A. $12.5 + 15 = x$

   B. $12.5 + x = 15$

   C. $15 + x = 12.5$

   D. $15 - x = 12.5$

3. If Farha knew that the sum of the heights of two sand dunes is 46 meters and one of the dunes is 18.25 m high, which equation could she write to find the unknown height? Select the two correct answers.

   A. $18.25 + x = 46$

   B. $18.25 + 46 = x$

   C. $46 - 18.25 = x$

   D. $x - 18.25 = 46$

Write "equation, expression or neither" in front of each statement.

a. Hany saves 15 L.E. every day. What does Hany save in the week? [..........]

b. $2.45 + 13.12 - 5$ [..........]

c. $1.8 + x = 2.8$ [..........]

d. $3.6 + 1.4 = 5$ [..........]

e. $35.45 - k = 15$ [..........]

f. The sum of two numbers is 13.8 [..........]

Lesson (2) Variables in Equations

You can solve equation in many ways :

1 Mental math

Example : $15 + x = 18$

What number plus 15 equals 18 ?

The answer is 3

, then $x = 3$

2 Inverse operation

Example : $y - 3.45 = 1.32$

$y - 3.45 = 1.32$ (Inverse operation)

, then $y = 1.32 + 3.45 = 4.77$

3 Using bar model

Example : $4.76 - b = 2.25$

4.76	
b	2.25

$b = 4.76 - 2.25 = 2.51$

1. $8.23 + p = 10.24$

   $p =$ ....

2. $T - 2.45 = 0.26$

   $T =$ ....

3. $2.45 + n = 5.24$

   $n =$ ....

5. $h - 6.82 = 1.23$

   $h =$ ....

6. $j - 12.40 = 3.01$

   $j =$ ....

7. $5.52 + 2.01 + m = 9.21$

   $m =$ ....

Solve the following equations, create a bar model to solve the following problems.

a. $m - 4.25 = 11.75$

b. $a + 19.5 = 30.8$

c. $1.2 = 2.4 - r$

d. $8.76 = 5.35 + w$

Solve each of the following equations using inverse operation strategy.

a. $76.85 + q = 90.96$

b. $v + 123.25 = 150.53$

c. $h - 15.32 = 7.83$

Lesson (3) — Telling Stories with Numbers

Write a story problem for the equation, then solve it.

$x + 1.357 = 2.18$

What is the story ?

Write a story problem for each of the following equations, then solve it.

a. $5.25 + 3.8 = n$

---

b. $7.85 - 3.685 = y$

Mark (✓) for the correct answer.

	Equation	Expression	Neither
$3.6 + x + 5.45$			
$2 + 3 = 4 + 1$			
$35.6 + 4.23 = x$			
Sum of two numbers is 15			
$8.43 - 2.34 = y + 2.85$			
15.68 more than a number			
$k - 15.8 + 7.18$			

1. Is $4.5 + 6.25 = x$ the same as $4.5 + 6.25 = M$? Why or why not?
2. Is $2.34 + 6 = 1.34 + 7$? Why or why not?

Solve the following equations, create a bar model to solve the following problems.

e. $3.45 + n = 6.75$

f. $17.22 - m = 15.17$

g. $2.53 + 4.38 + x = 12.76$

h. $15.38 + c = 9.23 + 16.3$

Solve each of the following equations using inverse operation strategy.

a. $8.23 + p = 10.24$

$p =$ ______

b. $t - 2.45 = 0.26$

$t =$ ______

c. $2.45 + n = 5.24$

$n =$ ______

d. $v + 42.89 = 100.01$

$v =$ ______

e. $h - 6.82 = 1.23$

$h =$ ______

f. $j - 12.40 = 3.01$

$j =$ ______

2. Basem and his friend Jana were snorkeling in Ras Muhammad National Park on the coral reef. Basem saw a hawksbill sea turtle that was 0.78 meter long. Jana saw a green turtle that was 0.58 m longer. How long was the green turtle?

What Is the Story?

1. Write a story problem for the equation and then solve: $x + 2.75 = 12.5$.

2. Write a story problem for the equation and then solve: $124.6 - 72.25 = m$.

3. Write a story problem for the equation and then solve: $34.750 - s = 15.25$.

Concept (2-2): Factors and Multiples

Lesson (4) — Prime Factorization

The following table shows the prime numbers which lie between 1 and 100 :

2	3	5	7	11	13	17	19	23
29	31	37	41	43	47	53	59	61
	67	71	73	79	83	89	97	

Complete the factor trees by filling in the missing factors in your journal or using the digital tool.

24
24
- Complete each of the factor trees (one of the factors is already listed).
- Decompose the composite factors until only prime numbers remain.
- Circle the prime factors. Draw a square around the composite factors.
- Record the prime factorization for each factor tree.
  (Example: $24 = 2 \times 2 \times 2 \times 3$)

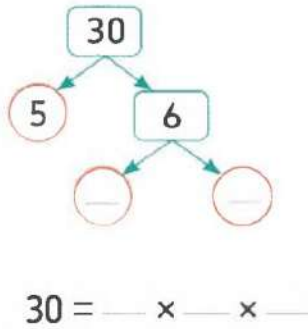
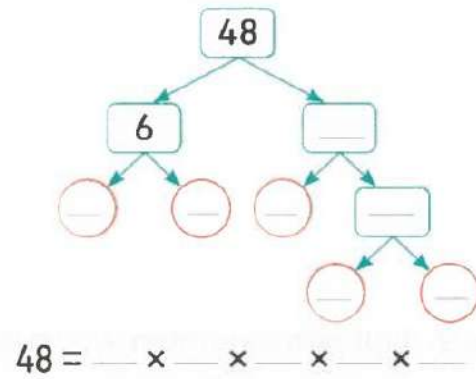
1. 18
2. 20
3. 75

Factorize to prime factors.

a.

30 = ___ × ___ × ___

b.

48 = ___ × ___ × ___ × ___ × ___

Products of Prime Factors Find the product of the prime factorization listed. Then, list all other factors of the product.

1. $2 \times 2 \times 5 =$ ____________

   Other factors:

2. $2 \times 3 \times 7 =$ ____________

   Other factors:

3. $2 \times 2 \times 2 \times 7 =$ ____________

   Other factors:

Lesson (5) Greatest Common Factor (GCF)

How can you find the greatest common factor of 18 and 24 [GCF] ?

You can find the greatest common factor in two ways :

You studied this method in primary 4

First way using listing method :

1. Find the factors of each number.
2. Determine the common factors of these numbers.
3. Get the greatest factor of the common factors.

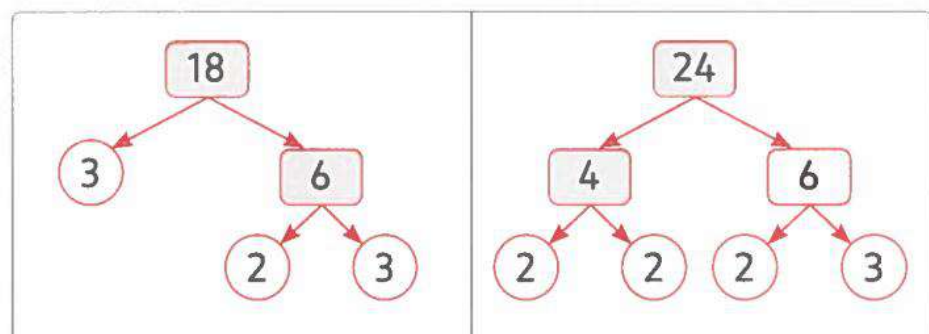
18		24	
1	18	1	24
2	9	2	12
3	6	3	8
		4	6

Remember

- *A common factor of two numbers is a factor of each of these numbers.*
- *The greatest common factor (GCF) of two numbers is the greatest number that is a factor of both.*

- **Factors of 18 :** 1 , 2 , 3 , 6 , 9 , 18
- **Factors of 24 :** 1 , 2 , 3 , 4 , 6 , 8 , 12 , 24
- **Common factors :** 1 , 2 , 3 , 6
- **The greatest common factor [GCF] :** 6

Second way using prime factorization :

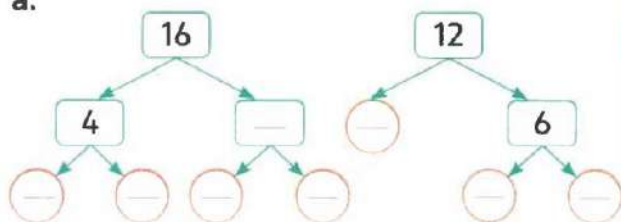
1. Factorize each number to its prime factors.
2. Find the common prime factors.
3. Find the product of these common prime factors.

$18 = 2 \times 3 \times 3$

$24 = 2 \times 3 \times 2 \times 2$

$GCF = 2 \times 3 = 6$

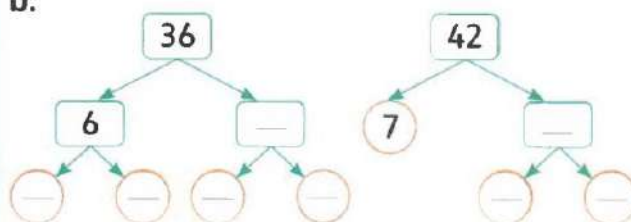
Find the GCF of 36 and 54

Find the prime factorization, then find the GCF

a.

16 =

12 =

GCF =

b.

36 =

42 =

GCF =

Homework

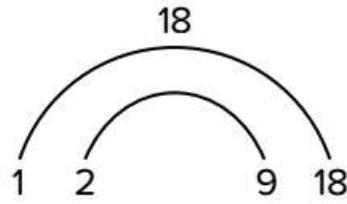
Fill in the missing factors represented by the variables.

$4 \times m = 16$ $m =$ ______

$v \times 15 = 45$ $v =$ ______

$6 \times t = 42$ $t =$ ______

$p \times 9 = 72$ $p =$ ______

Ahmed created this factor rainbow for 18. What factors did he forget?

A. 8 and 10 B. 5 and 3 C. 4 and 4 D. 3 and 6

Circle the factors of the numbers listed.

a. 15 : 2 5 10

c. 12 : 2 5 10

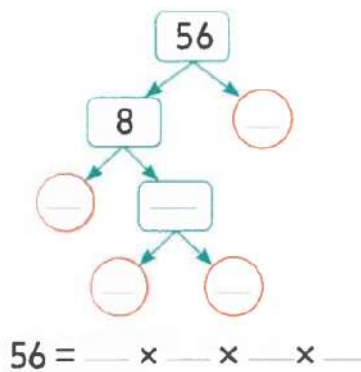
b. 30 : 2 5 10

d. 25 : 2 5 10

e. 16 : 1 2 3 4 5 6 7 8 9 10

f. 20 : 1 2 3 4 5 6 7 8 9 10

Factorize to prime factors.

a.

b.

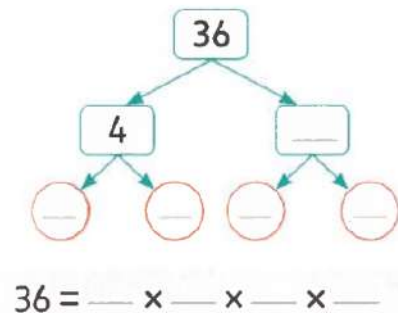
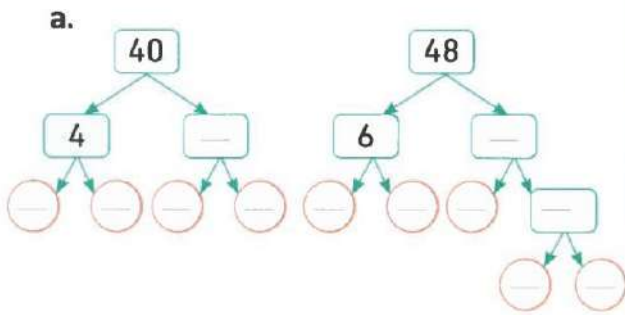
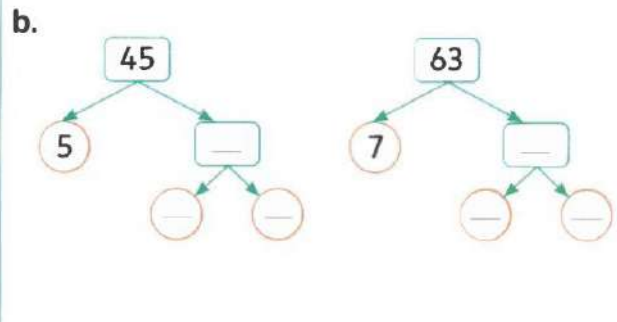
Find the prime factorization, then find the GCF

a.

40 = ______

48 = ______

GCF = ______

b.

45 = ______

63 = ______

GCF = ______

Choose the correct answer.

1. The GCF of 7 and 56 is ______

A. 1 B. 56 C. 7 D. 14

2. The GCF of 18 and 27 is ______

A. 1 B. 3 C. 6 D. 9

3. The GCF of 20 and 30 is ______

A. 1 B. 4 C. 5 D. 10

4. The common factor of all numbers is ______

A. 0 B. 1 C. 2 D. 3

Lesson (6) Identifying Multiples

1. List the first five multiples of 6. ____________________

2. List the first six multiples of 7. ____________________

3. List eight multiples of 10. ____________________

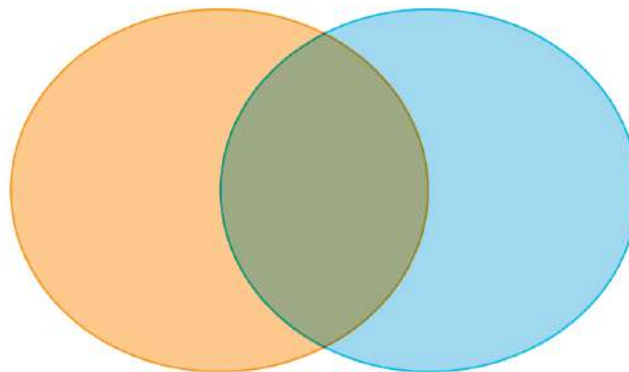
4. Adel is buying cartons of eggs and bottles of juice at the supermarket to make breakfast for friends. Each carton contains 12 eggs. Complete the chart for Adel.

Cartons	1	2	3	4	5	6
Eggs	12					

5. The juice comes in packs of 9. Complete the chart for Adel.

Packs	1	2	3	4	5	6
Juice	9					

6. If Adel is buying enough eggs and juice for 36 people, how many cartons of eggs and packs of juice will he need to buy for each guest to have 1 egg and 1 juice?

Multiples of 3 **Multiples of 4**

Select the three numbers that are NOT common multiples of 5 and 7.

A. 14
B. 21
C. 35
D. 55
E. 70
F. 105

Select the three numbers for which 24 and 32 are common multiples.

A. 2
B. 3
C. 4
D. 6
E. 7
F. 8

Lesson (7) Least Common Multiple (LCM)

prime	**factor**	**one**
composite number	**product**	**multiples**

1. A ________ is a number with more than one set of factor pairs.

2. A ________ is a number multiplied by another number to find a product.

3. Skip counting is a way to find ________ of a number.

4. ________ is a factor of all numbers.

5. A ________ number's only factor pair is one and itself.

6. A ________ is the answer to a multiplication problem.

Least Common Multiple List at least three multiples of each number, then find the least common multiple (LCM) for each pair of numbers. If you do not find the LCM in the first three multiples, continue to list multiples until you find one.

1. 6 and 9

Multiples of 6: ____________

Multiples of 9: ____________

LCM: ____________

2. 2 and 3

Multiples of 2: ____________

Multiples of 3: ____________

LCM: ____________

3. 10 and 5

Multiples of 10: ____________

Multiples of 5: ____________

LCM: ____________

5. 5 and 11

Multiples of 5: ____________

Multiples of 11: ____________

LCM: ____________

4. 3 and 8

Multiples of 3: ____________

Multiples of 8: ____________

LCM: ____________

6. 5 and 6

Multiples of 5: ____________

Multiples of 6: ____________

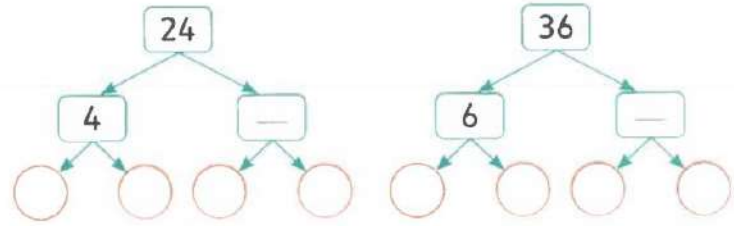
LCM: ____________

Find the least common multiple.

a. 24 and 36

24 = ___ × ___ × ___ × ___

36 = ______________

LCM = ______________

f. 12 , 9 and 18

12 = ______________

9 = ______________

18 = ______________

LCM = ______________

1. Badr is buying kofta and aish baladi for his birthday party. The kofta is sold in packages of 3. The bakery sells the aish baladi in packages of 12. Badr wants to have exactly the same number of each. What is the minimum number of kofta and aish baladi he should buy?

Package	1					
Kofta	3					

Package	1					
Aish Baldi	12					

2. Hend and Jana are biking around a small lake. Hend makes a complete lap around the lake in 6 minutes. It takes her younger sister, Jana, 8 minutes to finish one lap. If Hend and Jana continue to bike around the lake at the same rate, how many minutes will it take for them to come together at the starting point again?

Lap	1					
Hend	6					

Lap	1					
Jana	8					

Lesson (8) Factors or Multiples?

Greatest and Least Find the GCF and LCM for each number pair.

1. 12 and 10

GCF: ________ LCM: ________

2. 9 and 5

GCF: ________ LCM: ________

3. 11 and 2

GCF: ________ LCM: ________

4. 8 and 4

GCF: ________ LCM: ________

5. 9 and 12

GCF: ________ LCM: ________

1. Omnia has two strips of cloth. One is 35 centimeters wide, and the other is 75 cm wide. She wants to cut both pieces into strips of equal width that are as wide as possible. How wide should she cut the strips? Do you have to find the GCF or the LCM? What is the answer?

2. Omar exercises every 12 days. Rana exercises every 8 days. Both friends exercised together today. How many days will it be until they exercise together again? Do you have to find the GCF or the LCM? What is the answer?

3. Menna is giving her friends pencils and special erasers. The store sells pencils in boxes of 8 and erasers in boxes of 10. If Menna wants the same number of each, what is the minimum number of pencils that she will have to buy? Do you have to find the GCF or the LCM? What is the answer?

2. Complete using "Yes" or "No".

a. Is 34 a multiple of 9 ? ....

b. Is 40 a multiple of 8 ? ....

c. Is 35 a multiple of 4 ? ....

d. Is 30 a multiple of 2 ? ....

e. Is 7 a multiple of 7 ? ....

f. Is 81 a multiple of 9 ? ....

Find the least common multiple.

b. 15 and 18

15 = ____________________

18 = ____________________

LCM = ____________________

c. 12 and 9

12 = ____________________

9 = ____________________

LCM = ____________________

d. 32 and 48

32 = ____________________

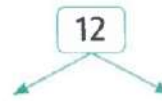
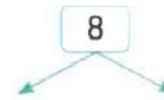
48 = ____________________

LCM = ____________________

e. 6 , 9 and 8

6 = ____________________

9 = ____________________

8 = ____________________

LCM = ____________________

4. Nour is making snack bags for an upcoming trip. He has 6 oranges and 12 pieces of dried fruit. He wants the snack bags to be identical without any food left over. What is the greatest number of snack bags Nour can make? Do you have to find the GCF or the LCM? What is the answer?

5. Malak baked 30 servings of cakes and 48 servings of baklava for her family. She wants to divide the desserts into containers so that each person receives the same number of servings. How many containers will she need? Do you have to find the GCF or the LCM? What is the answer?

6. Ola sells baskets of figs that each hold 9. She also sells bags of pomegranates that each hold 7. If she sells the same number of each, what is the smallest quantity of each type of fruit that she sold? Do you have to find the GCF or the LCM? What is the answer?

Choose the correct answer.

1. 20 is a multiple of ______
   A. 3 B. 6
   C. 8 D. 10

2. Which of the following is a multiple of 5 ?
   A. 23 B. 40
   C. 51 D. 64

3. Which of the following is a multiple of 9 ?
   A. 3 B. 45
   C. 56 D. 89

4. Which is NOT a multiple of 6 ?
   A. 0 B. 30
   C. 20 D. 42

5. Which of the following is NOT a multiple of 10 ?

A. 10 B. 20
C. 35 D. 50

6. Which is a common multiple of 5 and 8 ?

A. 20 B. 40
C. 35 D. 45

7. Which is NOT a common multiple of 9 and 6 ?

A. 18 B. 54
C. 36 D. 42

8. The common multiple for all numbers is ....

A. 0 B. 1
C. 2 D. 4

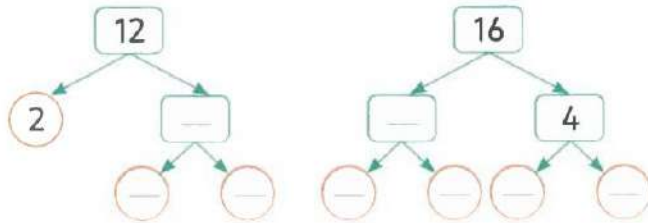
Find the GCF and LCM for each of the following numbers.

a. 12 and 16

12 = ...

16 = ...

GCF = ...

LCM = ...

b. 18 and 20

18 = ...

20 = ...

GCF = ...

LCM = ...

c. 24 and 36

24 = ...

36 = ...

GCF = ...

LCM = ...

Unit (2) Assessment

[1] Choose the correct answer:

(1) If: N – 4.45 = 9.27, then N = ...

ⓐ 4.82 ⓑ 5.22 ⓒ 13.62 ⓓ 13.72

(2) The GCF of the two numbers 3 and 9 is ....

ⓐ 1 ⓑ 2 ⓒ 3 ⓓ 4

(3) The common multiple of all numbers is ....

ⓐ 0 ⓑ 1 ⓒ 2 ⓓ 3

(4) Which of the following is composite number? ....

ⓐ 2 ⓑ 7 ⓒ 15 ⓓ 11

(5) 7.35 + 2.65 = 10 represents ....

ⓐ equation ⓒ mathematical expression

ⓑ variable ⓓ otherwise

(6) The LCM of the two numbers 5 and 6 is ....

ⓐ 6 ⓑ 30 ⓒ 5 ⓓ 11

[2] Complete:

(1) The smallest prime number is ....

(2) The common factor of all numbers is ....

(3) The LCM of the two numbers 2 and 7 is ....

(4) If: Y + 7.828 = 38.459, then Y = ...

(5) The number whose prime factor are (2, 3, 5) is ....

(6) The GCF of the two numbers 12 and 20 is ....

[3] Find:

(1) Find GCF and LCM of the two numbers 6 and 8.

....

....

....

....

....

(2) The weight of boxes together is 14.6 kg and the weight of 1^{st} is 8.15 kg. What is the weight of 2^{nd}? ....

UNIT
3

Theme 1 | Number Sense and Operations

Unit 3
Multiplication with Whole Numbers

Photo Credit: MidoSemsem / Shutterstock.com

Concept (3-1)
Multiplying by 2-Digit Number

Lesson (1) Using the Area Model to Multiply

Multiplying Tens How many times will 10 need to be multiplied by itself to equal each given number?

1. 100
2. 1,000
3. 10,000
4. 100,000

Whiteboard: Expanding Equations Work with your teacher and classmates to create area models and find each product.

1. $374 \times 62 =$ ____________

374×62

		70	
2		140	8

2. $506 \times 42 =$ ____________

506×42

Decompose with Area Model Eman is planting a garden. She wants to find the area of the garden to know how much topsoil she will need. The garden is 46 meters long and 24 m wide. How many different ways can you decompose the numbers to help her find the area?

$46 \times 24 =$ ______________

Example:

Complete each of the following area models.

a.

b.

	50	4
20		
3		

c.

	100	70	5
80			
2			

d.

	300	60	1
50			
6			

Lesson (2) The Distributive Property of Multiplication

Use the Distributive Property of Multiplication and area model to find the product of each of the following.

a. $14 \times 27 =$ ______

$(10 \times 20) + (10 \times$ ___ $) + ($ ___ $\times 20)$

$+ (4 \times$ ___ $) =$ ______

	20	7
10	200	70
4	80	28

$58 \times 42 =$ ____

$(40 \times __) + (40 \times 8) + (__ \times 50) + (2 \times __) =$ ____

	50	8
40	2,000	320
2	100	16

$19 \times 62 =$ ____

$(10 \times __) + (__ \times 2) + (__ \times 60) + (9 \times __) =$ ____

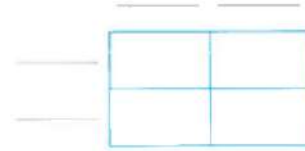
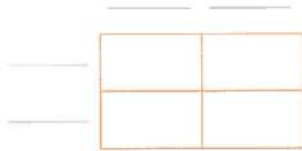
	60	2
10	600	20
9	540	18

Homework

Expanding Equations. Create an area model for each of the following problems and find each product.

a. $21 \times 64 =$ ____

b. $103 \times 72 =$ ____

$(20 \times 30) + (__ \times __) + (__ \times __) + (4 \times 7) =$ ____

	30	7
20	600	140
4	120	28

Complete the area model and evaluate.

a. $(50 \times 30) + (50 \times 4) + (7 \times 30) + (7 \times 4) =$ ____

	30	4
50	____	200
____	210	____

Lesson (3) Multiply by a 2-Digit Number Using the Algorithm

Step 1
Multiply by ones.

```
  ② ① ②
  1,6 2 5
×     2 4
---------
  6,5 0 0  ← (4 × 1,625)
```

Step 2
Multiply by tens.

```
  ①   ①
  ② ① ②
  1,6 2 5
×     2 4
---------
   6,5 0 0
 3 2,5 0 0 ← (20 × 1,625)
```

Step 3
Add the products.

```
      1,6 2 5
  ×       2 4
  -----------
     ①
      6,5 0 0
  + 3 2,5 0 0
  -----------
    3 9,0 0 0
```

Area Model	Partial Products Model	Standard Algorithm for Multiplication
(columns 40, 5; rows 30, 7) 30 × 40 = 1,200; 30 × 5 = 150; 7 × 40 = 280; 7 × 5 = 35	45 × 37 $(30 \times 40) = 1{,}200$ $(30 \times 5) = 150$ $(7 \times 40) = 280$ $(7 \times 5) = 35$ 1,665	45 × 37 (carries 1, 3 crossed out) 315 + 1,350 1,665

Area Model:

	40	5
30	1,200	150
7	280	35

Akram says that 34×69 will give you the same product as $(34 \times 70) - 34$. Do you agree or disagree? Why?

Fill in the area model starting at letter A.

a.

	20	6
30	D.	C.
3	B.	A.

Final product : ______

b.

	70	8
50	D.	C.
2	B.	A.

Final product : ______

Lesson (4) Multiplying Multi-Digit Numbers

Determine the values of the missing digits and then find the final product.

a.

```
    4
    4̸
    6 7
×   7 6
  4 0 2
+ □ 6 9 □
 ______
```

b.

```
    6
    7̸
    4 9
×   7 8
  3 □ 2
+ 3 □ 3 0
 ______
```

c.

```
  1
  2̸ 1
  5 6 3
×   2 4
2 2 5 □
+ 1 □ 2 □ 0
 ______
```

Solve the following. First by estimate by round to the greatest place value, second use standard algorithm to find the actual product.

a.

```
    8 8 8 → ____     Estimate
×     2 9 → ____
```

b.

```
    7 2 1 → ____     Estimate
×     7 4 → ____
```

c.

```
  4, 6 2 5 → ____    Estimate
×      1 8 → ____
```

Choose the correct answer.

1. 17 × 18 ◯ 20 × 11

A. >　　B. <　　C. =

---

2. What is the Ones digit in the product of 37 × 124 ?

A. 2　　B. 3　　C. 6　　D. 8

---

3. The product of 372 × 52 is close to ______

A. 20,000　　B. 15,000　　C. 7,000　　D. 10,000

---

4. 831 × 49 is close to ______

A. 30,000　　B. 32,000　　C. 50,000　　D. 40,000

---

5. The missing number in the product is ______

A. 2,882

B. 10,122

C. 2,892

D. 2,880

$$\begin{array}{r} 723 \\ \times \quad 14 \\ \hline \text{______} \\ +\ 7,230 \\ \hline 10,122 \end{array}$$

---

6. 327 × 53 ◯ 199 × 43

A. >　　B. <　　C. =

Lesson (5) Multiplication Problems in the Real World

Sandwiches at the diner are 24 pounds, a salad costs 3 pounds and a glass of juice is 8 pounds. A Family went to the diner and order 3 sandwiches, 2 salads and 3 glasses of juice.

a. How much will the family pay for the 3 sandwiches ? ______

b. How much will the family pay for the 2 salads ? ______

c. How much will the family pay for the 3 glasses of juice ? ______

d. How much is the total bill ? ______

Shirts in the seasons costs 185 pounds. Sweaters cost 270 pounds. Yara and her friends bought 12 shirts and 13 sweaters.

a. How much will they pay for the shirts ? ________

b. How much will they pay for the sweaters ? ________

c. How much is their bill ? ________

For Wael's baklava syrup, he needs 250 milliliters of honey, 15 mL of orange extract, and 30 mL of lemon juice per recipe. How many total milliliters of liquid ingredients will he need for the sauce if he needs to make 18 batches?

Mona uses 1,133 grams of sugar daily. How many grams does she use in 30 weeks?

1. Use standard algorithm strategy to find the result.

a. 35 × 862

b. 74 × 5,641

c. 2,504 × 16

c.

	300	60	7
20	F.	E.	D.
9	C.	B.	A.

Final product : ____________

d.

	500	40	6
10	F.	E.	D.
8	C.	B.	A.

Final product : ____________

Find the result using standard algorithm.

a. $\begin{array}{r} 26 \\ \times\ 33 \\ \hline \end{array}$

b. $\begin{array}{r} 78 \\ \times\ 52 \\ \hline \end{array}$

c. $\begin{array}{r} 367 \\ \times\ 29 \\ \hline \end{array}$

d. $\begin{array}{r} 546 \\ \times\ 18 \\ \hline \end{array}$

Estimate the product.

a. 416 × 72

b. 871 × 27

c. 586 × 69

d. 490 × 71

e. 817 × 34

f. 999 × 94

Mona makes freshly squeezed lemonade each day for her customers. She uses 6 lemons for each liter of lemonade. She makes 8 liters of lemonade a day. After 365 days, how many lemons has she used?

How many liters of lemonade does she make in 365 days?

Unit (3) Assessment

[1] Choose the correct answer:

(1) 15×34 450

ⓐ < ⓑ > ⓒ = ⓓ otherwise

(2) 42×88 is estimated as ....

ⓐ 2,300 ⓑ 4,200 ⓒ 3,600 ⓓ 6,300

(3) $27 \times 100 =$ ....

ⓐ 27,000 ⓑ 2,700 ⓒ 270 ⓓ 27

(4) $14 \times 27 = (10 \times 20) + (10 \times 7) + (4 \times 20) + (4 \times$ ......)

ⓐ 10 ⓑ 4 ⓒ 20 ⓓ 7

(5) $(20 \times 30) + (20 \times 9) + (7 \times 30) + (7 \times 9) =$ ....

ⓐ 29×37 ⓑ 92×73 ⓒ 27×39 ⓓ 72×93

[2] Complete:

(1) In the opposite area model,
The value of the unknown is ....

	50	6
4	200	24
20	1,000	?

(2) $32 \times 156 =$ ....

	100	50	6
2			
30			

[3] Find:

(1) Using any strategy find: 234×47.

....

(2) Mona uses 1,133 grams of sugar daily. How many grams does she use in 30 days? ....

UNIT
4

Theme 2 | Mathematical Operations and Algebraic Thinking

Unit 4
Division with Whole Numbers

Photo Credit: Sombat Muycheen / Shutterstock.com

Concept (4-1): Models for Division

Lesson (1) Dividing by a 2-Digit Number

Divide : 1,845 ÷ 15 By using the area model

Step 1

Draw a long rectangle and write 15 on the smaller left side of the rectangle.

15	

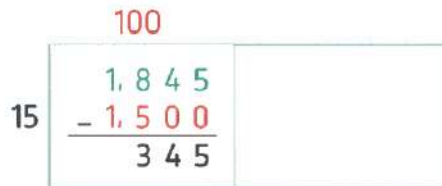
Step 2

Try to use basic facts and pattern to get close to 1,845

15 × 1 = 15 , 15 × 10 = 150

, 15 × 100 = 1,500 (close to 1,845)

• Subtract 1,845 – 1,500 = 345

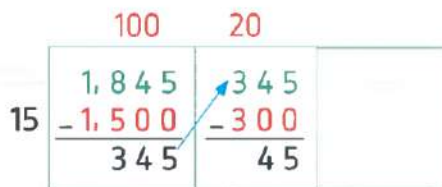
	100	
15	1,845 – 1,500 345	

Step 3

There are 345 meters left to be divided by 15

15 × 2 = 30

, 15 × 20 = 300 (close to 345)

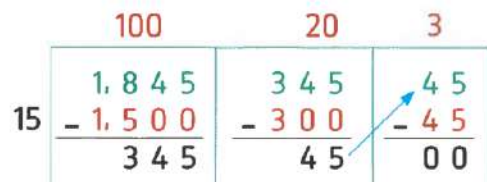
• Subtract 345 – 300 = 45

	100	20	
15	1,845 – 1,500 345	345 – 300 45	

Step 4

Since, there are 45 meters left to be divided by 15

15 × 1 = 15 , 15 × 2 = 30 , 15 × 3 = 45 (the same number)

• Subtract : 45 – 45 = 0

	100	20	3
15	1,845 – 1,500 345	345 – 300 45	45 – 45 00

Step 5

Add the 3 numbers 100 + 20 + 3 = 123

then : 1,845 ÷ 15 = 123

Complete each set of multiplication equations

1. 3 × 5 = ________

3 × 50 = ________

3 × 500 = ________

2. 40 × 2 = ________

40 × 20 = ________

400 × 200 = ________

Model Match Choose the correct area model that represents each problem and fill in any missing numbers. Then, use the area model to answer each problem.

1. 9,234 ÷ 81 = ________

2. 3,622 ÷ 31 = ________

3. 1,050 ÷ 7 = ________

A.

	100	10	6
31	3,622 − 3,100 522	522 − 310 212	212 − 186 26

100 + 10 + 6 = 116 R26

B.

	100	50
____	1,050 − 700 350	350 − 350 0

100 + 50 = 150

C.

	____	____	____	____
81	9,234 − 8,100 1,134	1,134 − 810 324	324 − 162 162	162 − 162 0

____ + ____ + ____ + ____ = ____

Lesson (2) Estimating Quotients

Estimate using compatible numbers.

a. 5,814 ÷ 47 = ________

Estimation : ________

b. 6,397 ÷ 28 = ________

Estimation : ________

c. 1,448 ÷ 48 = ________

Estimation : ________

d. 7,061 ÷ 23 = ________

Estimation : ________

Homework

Estimate using compatible numbers.

a. 6,658 ÷ 69 = ...

Estimation : ....

b. 1,064 ÷ 19 = ...

Estimation : ....

Choose the correct answer.

1. In the equation 27 ÷ 3 = 9 , the quotient is ....
   - A. 27
   - B. 3
   - C. 9
   - D. zero

2. The divisor in the equation 48 ÷ 6 = 8 is ....
   - A. 48
   - B. 6
   - C. 8
   - D. zero

3. Dividend = Quotient × divisor + ...
   - A. Dividend
   - B. Quotient
   - C. Divisor
   - D. Remainder

4. 36 ÷ .... = 9
   - A. 3
   - B. 4
   - C. 5
   - D. 6

5. .... ÷ 5 = 9
   - A. 59
   - B. 54
   - C. 45
   - D. 95

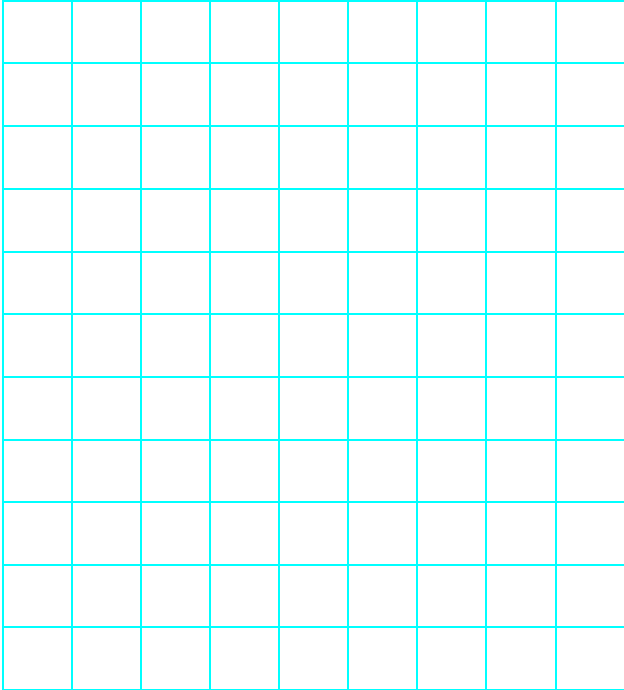
6. 29 ÷ 4 = 7 R ....
   - A. zero
   - B. 1
   - C. 2
   - D. 3

7. Zero divided by any non-zero number gives .... as a quotient.
   - A. zero
   - B. same number
   - C. 1
   - D. 2

8. Giovanni needs 36 balloons for the party but balloons come in a pack of 9. How many packs should he buy ?
   - A. 2
   - B. 3
   - C. 4
   - D. 5

Concept (4-2): Dividing by 2-Digit Divisors

Lesson (3) — Using the Division Algorithm

1596 ÷ 3 =

2524 ÷ 4 =

744 ÷ 24 =

1,910 ÷ 83 =

$1,113 \div 53 =$

$1,077 \div 43 =$

$1,475 \div 35 =$

$1,716 \div 52 =$

Lesson (4) The Relation between Division and Multiplication

Choose the correct answer.

1. The division equation that matches $125 \times 36 = 4{,}500$ is ________
   A. $4{,}500 - 125 = 36$
   B. $125 \div 36 = 4{,}500$
   C. $4{,}500 \div 36 = 125$
   D. $125 + 36 = 4{,}500$

2. Which expression can be used to check the solution of the following division problem?
   $8{,}668 \div 24 = 361$ R 4
   A. 24×361
   B. $28 \times 8{,}668$
   C. $361 \times 4 + 24$
   D. $24 \times 361 + 4$

Lesson (5) Multistep Story Problems

Amgd saved 550 pounds, Bassem saved 3 times as much as Amgd and Sameh saved 900 pounds more than Agmd. How many pounds were saved by all of them?

Mom baked a batch of 12 balah el sham. Two balah el sham fell on the floor. If 4 children split the remaining balah el sham equally, how many balah el sham will each child get?

Homework

1,752 ÷ 73 =

1,676 ÷ 54 =

1,403 ÷ 61 =

1,935 ÷ 92 =

In one year, a textile factory used 11,650 meters of cotton, 4,950 fewer meters of silk than cotton, and 3,500 fewer meters of wool than silk. How many meters of fabric were used in all ?

Malek and his family are going on a road trip to his grandmother's house, which is 465 kilometers away. On Friday, they travel 124 km. On Saturday, they traveled 210 km. How many kilometers will they need to travel on Sunday to reach his grandmother's house?

Unit (4) Assessment

[1] Choose the correct answer:

(1) 1,530 ÷ 15 = ...

ⓐ 12 ⓑ 21 ⓒ 102 ⓓ 201

(2) 1,315 ÷ 12 is closest to ....

ⓐ 100 ⓑ 130 ⓒ 150 ⓓ 200

(3) 1,843 ÷ 16 = ...

ⓐ 115 R0 ⓑ 115 R1 ⓒ 115 R2 ⓓ 115 R3

(4) Gehad bought 14 meters of fabric, it costs 224 pounds, then the price of one meter is ....

ⓐ 14 ⓑ 41 ⓒ 16 ⓓ 63

(5) In the opposite area model, the quotient is ....

	100	50
7	1,050 − 700 = 350	350 − 350 = 0

ⓐ 100 ⓑ 50 ⓒ 150 ⓓ 150 R7

(6) In the opposite area model, the dividend is ....

	100	50
7	1,050 − 700 = 350	350 − 350 = 0

ⓐ 150 ⓑ 7 ⓒ 1,050 ⓓ 350

(7) In the opposite area model, the divisor is ....

	100	10	6
31	3,622 − 3,100 = 522	522 − 310 = 212	212 − 186 = 26

ⓐ 3,622 ⓑ 116 ⓒ 26 ⓓ 31

[2] Complete:

(1) 29 ÷ 4 = 7 R......

(2) .... ÷ 9 = 4.

(3) If: 31 ÷ 6 = 5 R1, then 5 × 6 + ... = 31

[3] Find:

(1) Salma baked 350 cakes, she put every 20 cakes in a bag. How many bags does she need? Are there any remainder cakes?

....

UNIT
5
Theme 2 | Mathematical Operations and Algebraic Thinking
Unit 5
Multiplication and Division with Decimals
Photo Credit: Matej Kastelic / Shutterstock.com

Concept (5-1): Multiplying Decimals

Lesson (1) Multiplying by Powers of Ten

Missing Numbers Fill in the missing numbers in each equation.

1	10	100	1,000	10,000	100,000

1. 496 = 4 × (A) + 9 × (B) + 6
2. 6,140 = 6 × (C) + 1 × (D) + 4 × (E)
3. 20,403 = 2 × (F) + 4 × (G) + 3
4. 78,594 = 7 × (H) + 8 × (I) + 5 × (J) + 9 × (K) + 4
5. 8,032 × 1,000 = (L)

Now fill in the blanks.

1. 25 × 1,000 = ______________
2. 25 × 100 = ______________
3. 25 × 10 = ______________
4. 25 × 1 = ______________
5. 25 × 0.1 = ______________
6. 25 × 0.01 = ______________
7. 25 × 0.001 = ______________

Hoda's Stride Hoda's stride is 0.72 meters. How far, in meters, will Hoda walk after taking 1,000 paces? Use words and numbers to explain how you found your answer.

Lesson (2) — Multiplying Decimals by Whole Numbers

Evaluate:

1. 0.3×3
2. 0.3×4
3. 0.3×5
4. 2.5×3
5. 0.35×5

Complete.

a. $7.5 \times 3 =$ ________

b. $7.5 \times 6 =$ ________

c. $6.05 \times 5 =$ ________

d. $0.74 \times 9 =$ ________

e. $5.68 \times 7 =$ ________

f. $7.2 \times 12 =$ ________

Lesson (3) — Multiplying Tenths by Tenths

Evaluate:

1. $0.1 \times 0.1 =$ ____________
2. $0.3 \times 0.4 =$ ____________
3. $0.5 \times 0.2 =$ ____________
5. $0.9 \times 0.5 =$ ____________
4. $0.7 \times 0.8 =$ ____________
6. $0.5 \times 0.6 =$ ____________
7. $1.6 \times 0.4 =$ ____________

Lesson (4) Multiplying Decimals Using the Area of Rectangle Model

1. $80 \times 3 = 240$

$8 \times 30 = 240$

$8 \times 3 =$ ____________

$0.8 \times 3 =$ ____________

$8 \times 0.3 = 2.4$

$0.8 \times 0.3 =$ ____________

$0.08 \times 0.3 =$ ____________

$0.8 \times 0.03 =$ ____________

2. $7 \times 600 = 4{,}200$

$7 \times 60 =$ ____________

$7 \times 6 = 42$

$7 \times 0.6 =$ ____________

$7 \times 0.06 = 0.42$

$0.7 \times 0.6 =$ ____________

$0.7 \times 0.06 =$ ____________

$0.07 \times 0.06 =$ ____________

Homework

Multiply to complete the table.

	1.	2.	3.
×	3	30	300
0.001	A. ____________	G. ____________	M. ____________
0.01	B. ____________	H. ____________	N. ____________
0.1	C. ____________	I. ____________	O. ____________
1	D. ____________	J. ____________	P. ____________
10	E. ____________	K. ____________	Q. ____________
100	F. ____________	L. ____________	R. ____________

Let's Try It Evaluate.

1. $4.2 \times 10 =$ ________
2. $360 \times 0.1 =$ ________
3. $7.4 \times 0.01 =$ ________
4. $1.245 \times 100 =$ ________
5. $602.1 \times 0.01 =$ ________
6. $14.14 \times 0.1 =$ ________

Find the result of each of the following.

a. $57.32 \times 0.1 =$ ________
b. $0.0823 \times 1{,}000 =$ ________
c. $18 \times 0.001 =$ ________
d. $0.524 \times 10 =$ ________
e. $5.3 \times 0.01 =$ ________
f. $62 \times 100 =$ ________

Complete.

a. $0.5 \times 5 =$ ________
b. $0.5 \times 6 =$ ________
c. $3.5 \times 3 =$ ________
d. $0.45 \times 5 =$ ________
e. $0.015 \times 9 =$ ________
f. $4.15 \times 12 =$ ________

Find each of the following.

a.
$$\begin{array}{r} 2.5 \\ \times \quad 3 \\ \hline ___ \end{array}$$

b.
$$\begin{array}{r} 0.35 \\ \times \quad 5 \\ \hline ___ \end{array}$$

c.
$$\begin{array}{r} 4.4 \\ \times \quad 6 \\ \hline ___ \end{array}$$

d.
$$\begin{array}{r} 0.65 \\ \times \quad 7 \\ \hline ___ \end{array}$$

Lesson (5) Multiplying Decimals through the Hundredths Place
Lesson (6) Multiplying Decimals through the Thousandths Place

The digits of the product for each problem have been provided, but the decimal point is missing. Without multiplying, use your reasoning to place the decimal point correctly in the product.

1. 5.8 × 7.4 = ________

   4,292

2. 32.4 × 5.3 = ________

   17,172

3. 11.68 × 2.4 = ________

   28,032

4. 15.4 × 0.49 = ________

   7,546

Using the Standard Algorithm for Decimal Numbers Find the product for each multiplication problem using the standard algorithm.

1. 29.35 × 3.4

2. 43.2 × 0.24

3. 8.92 × 0.17

4. 1.74 × 35

Find the product for each multiplication problem using the standard algorithm :

a.
$$\begin{array}{r} 2.43 \\ \times \quad 6.9 \\ \hline \end{array}$$

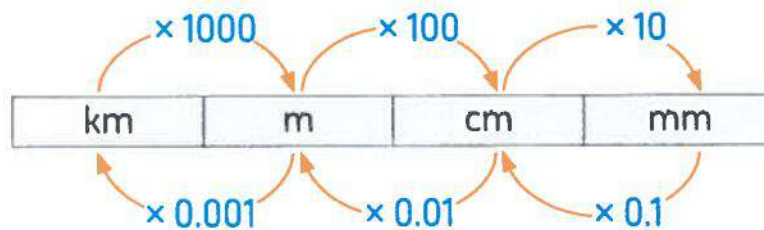
b.
$$\begin{array}{r} 29.35 \\ \times \quad 3.4 \\ \hline \end{array}$$

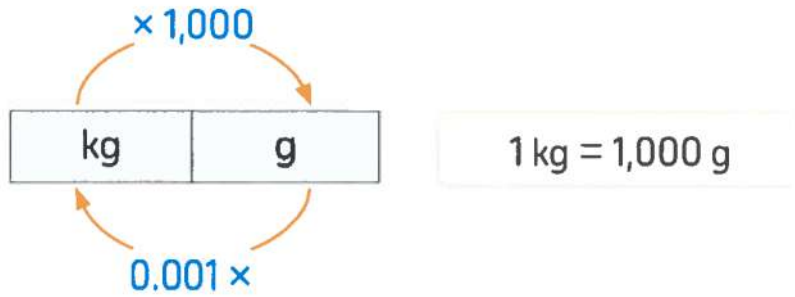
c.
$$\begin{array}{r} 47.8 \\ \times \quad 5.2 \\ \hline \end{array}$$

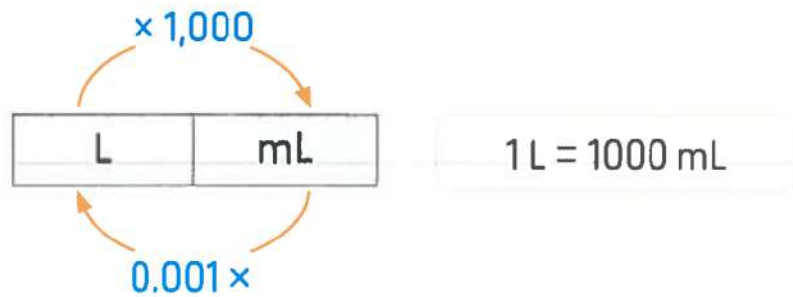
Compare the products of the following by putting (<, > or =).

a. 0.318 × 1.5	◯	3.18 × 0.15	b. 0.75 × 0.02	◯	7.5 × 0.2
c. 13.6 × 0.4	◯	0.136 × 0.4	d. 7.3 × 0.28	◯	0.73 × 2.8
e. 0.342 × 1.2		3.42 × 0.12	f. 172 × 0.003	◯	0.172 × 0.3
g. 48.2 × 3.7	◯	4.82 × 37	h. 42 × 1.532	◯	4.2 × 15.32

Lesson (7) Decimals and the Metric System

• Converting metric units of length :

• Converting metric units of mass :

1 kg = 1,000 g

• Converting metric units of capacity :

1 L = 1000 mL

Metric Match Select the equivalent measurement.

1. 10,870 g = ______ kg   1,087   108.7   10.87   1.087
2. 3,465 mL = ______ L   0.3465   3.465   34.65   346.5
3. 22 cm = ______ m   2,200   220   2.2   0.22
4. 0.7 m = ______ cm   7   70   700   7,000
5. 17.6 kg = ______ g   0.176   1.76   1,760   17,600
6. 95 mm = ______ cm   9.5   950   9,500   95,000

Lesson (8) Measurements, Decimals, and Powers of Ten

Complete:

a. 5.7 L = 5.7 × ________ = ________ mL

b. 2.589 m = 2.589 × ________ = ________ cm

c. 87.2 km = 87.2 × ________ = ________ m

d. 3.02 kg = 3.02 × ________ = ________ g

e. 140 g = 140 × ________ = ________ kg

f. 18.4 mm = 18.4 × ________ = ________ cm

g. 52 cm = 52 × ________ = ________ m

h. 142 cm = 142 × ________ = ________ m

i. 317 kg = 317 × ________ = ________ g

j. 370 mL = 370 × ________ = ________ L

k. 5.9 m = 5.9 × ________ = ________ mm

l. 527 cm = 527 × ________ = ________ mm

m. 8.657 m = 8.657 × ________ = ________ cm ≈ ________ cm (to the nearest cm)

n. 7400 mL = 7400 × ________ = ________ L ≈ ________ (to t he nearest liter)

o. 4.8 km – 1800 m = ________ km

p. 570 mm + 1.43 m = ________ m

q. 5 L – 3,200 mL = ________ L

r. 15.6 kg + 1,800 g = ________ kg

Powers of Ten Complete each equation. Discuss the difference between powers of 10 and multiples of 10.

1. 425 × 10 = ________
2. 3.7 × 100 = ________
3. 0.94 × 0.1 = ________
4. 425 × ________ = 0.425
5. 3.7 × ________ = 0.37
6. 0.94 × ________ = 940
7. ________ × 1,000 = 1,800
8. ________ × 0.1 = 0.6512
9. ________ × 100 = 89.3

Converting Measurements Use multiplication and powers of 10 to convert the measurements.

1. Amgad is a weightlifter. He needs to drink about 4,230 milliliters of water every day. How many liters of water does he need? Select the multiplication problem that could be used to answer the question.

   A. $4{,}230 \times 1{,}000$
   B. $4{,}230 \times 100$
   C. $4{,}230 \times 0.01$
   D. $4{,}230 \times 0.001$

Lesson (9) Solving Multistep Story Problems

1. Marwan is a computer engineer. The computer he is repairing is currently in three pieces that have a mass of 2 kilograms, 600 grams, and 0.03 kg. His manager is waiting for the last piece, which has a mass of 1,750 g, to arrive. What will the mass of the computer be when it is completely assembled?

   ____

2. Rania is a nurse in a hospital. She is getting wrap bandages from the storage closet for her patients. She needs 1.35 meters of bandages for each of her 4 patients. There are 250 centimeters in each package. How many packages does she need? ______________

   How many, if any, will be left over? ______________

3. Dalia made a liter of sugar cane juice. She drank 320 milliliters. Her father drank 0.25 liters. How much sugar cane juice is remaining? ______________

4. Ehab wants to know how much he has grown this year. In January, he was 138.2 centimeters. By the end of the year, he was 1.5 meters tall. How much did Ehab grow this year? ______________

5. Ehab's twin sister Eman also wants to know how much she grew. In January, she was 1.34 meters. At the end of the year, she was 145 centimeters. Who grew more—Ehab or Eman? ______________ How much more? ______________

Using the Standard Algorithm for Decimal Numbers Find the product for each multiplication problem using the standard algorithm.

5. $\begin{array}{r} 2.43 \\ \times\, 6.9 \\ \hline \end{array}$

6. $\begin{array}{r} 10.21 \\ \times\, 0.64 \\ \hline \end{array}$

7. $\begin{array}{r} 12.87 \\ \times\, 7.3 \\ \hline \end{array}$

8. $\begin{array}{r} 47.8 \\ \times\, 5.2 \\ \hline \end{array}$

Find the product for each multiplication problem using the standard algorithm :

e.

$$\begin{array}{r} 9.72 \\ \times\ 0.46 \\ \hline \end{array}$$

f.

$$\begin{array}{r} 1.74 \\ \times\ 35 \\ \hline \end{array}$$

g.

$$\begin{array}{r} 10.21 \\ \times\ 0.64 \\ \hline \end{array}$$

Metric Match Select the equivalent measurement.

7.	19,629 mL = ______ L	1,962.9	196.29	19.629	1.9629
8.	3.3 m = ______ cm	33	330	3,300	33,000
9.	700 g = ______ kg	7,000	70	7	0.7
10.	694 mm = ______ cm	6,940	69.4	6.94	0.694
11.	2.5 L = ______ mL	2,500	250	25	0.25
12.	7.8 cm = ______ mm	0.078	0.78	78	780

If the heights of Nada, Habiba and Sara are 1.22 m., 124 cm and 1,230 mm.

, what is the total of their heights ?

If Nader's weight at the beginning of a year is 34.1 kg and his weight at the end of the same year is 32,460 g, how much weight did Nader lose ?

Concept (5-2): Dividing Decimals

Lesson (10) Dividing by Powers of Ten

Fill It In Use the patterns you have just discovered to complete the division.

1. 800 ÷ 100 = ____________

   800 ÷ 10 = ____________

   800 ÷ 1 = ____________

   800 ÷ 0.1 = ____________

   800 ÷ 0.01 = ____________

2. 6,700 ÷ 1,000 = ____________

   6,700 ÷ 100 = ____________

   6,700 ÷ 10 = ____________

   6,700 ÷ 1 = ____________

   6,700 ÷ 0.1 ____________

   6,700 ÷ 0.01 = ____________

3. 32 ÷ 10 = ____________
4. 5.7 ÷ 0.1 = ____________
5. 5.7 ÷ 100 = ____________
6. 2.16 ÷ 0.01 = ____________
7. 71 ÷ 1,000 = ____________
8. 12.8 ÷ 0.01 = ____________
9. 0.4 ÷ 10 = ____________
10. 0.4 ÷ 0.001 = ____________
11. 29.08 ÷ 0.1 = ____________
12. 102.3 ÷ 0.01 = ____________

How Hot? Temperatures must reach at least 1,100℃ for glass to be blown or for earthenware clay to harden. Water boils at about one-tenth of that temperature. Select the choice that is closest to the temperature at which water boils.

A. 1,100 × 10 B. 1,100 ÷ 10 C. 1,100 × 0.1 D. 1,100 ÷ 0.1

Lesson (11) Patterns and Relationships in Powers of Ten

Same Answer, Inverse Operation Complete each equation with the correct power of 10. Be sure to look carefully at the given operation.

1. 14.6 × ________ = 146   14.6 ÷ ________ = 146
2. 387.23 × ________ = 3.8723   387.23 ÷ ________ = 3.8723
3. 9.102 × ________ = 910.2   9.102 ÷ ________ = 910.2
4. 65 × ________ = 6,500   65 ÷ ________ = 6,500
5. 0.39 × ________ = 0.039   0.39 ÷ ________ = 0.039
6. 0.75 × ________ = 750   0.75 ÷ ________ = 750
7. 28.4 × ________ = 0.284   28.4 ÷ ________ = 0.284
8. 150.8 × ________ = 150,800   150.8 ÷ ________ = 150,800

Metric Conversions with Multiplication and Division Complete each conversion. Then, write a multiplication equation and a division equation with the same answer.

Example:
357 cm = 3.57 m
357 × 0.01 = 3.57
357 ÷ 100 = 3.57

1. 712 mL = ________ L

   712 × ________ = ________

   712 ÷ ________ = ________

2. 23 m = ________ cm

   23 × ________ = ________

   23 ÷ ________ = ________

3. 300 g = ________ kg

   300 × ________ = ________

   300 ÷ ________ = ________

Lesson (12) Dividing Decimals by Whole Numbers

1. $9\overline{)121.14}$

2. $16\overline{)62.24}$

3. $30\overline{)589.5}$

Lesson (13) Dividing Decimals by Decimals

Estimate the quotients. Then, use the standard algorithm for division to find the quotient. Use your estimates to check the reasonableness of your answers.

1. $2.2\overline{)26.4}$

2. $0.4\overline{)99}$

3. $0.04\overline{)1.5}$

Homework

Dividing by Powers of Ten Complete each division problem mentally. Look for patterns to predict the placement of the decimal point.

1. 2,500 ÷ 100 = ______________
2. 2,500 ÷ 10 = ______________
3. 2,500 ÷ 1 = ______________
4. 2,500 ÷ 0.1 = ______________
5. 2,500 ÷ 0.01 = ______________
6. 2,500 ÷ 0.001 = ______________

Metric Conversions with Multiplication and Division Complete each conversion. Then, write a multiplication equation and a division equation with the same answer.

4. 5,200 mm = __________ m

   5,200 × __________ = __________

   5,200 ÷ __________ = __________

5. 5,200 mm = __________ cm

   5,200 × __________ = __________

   5,200 ÷ __________ = __________

4. $5\overline{)51.65}$

5. $6\overline{)73.02}$

1. $1.9\overline{)9.956}$	**4.** $0.05\overline{)1.43}$
2. $7.3\overline{)3.431}$	**5.** $0.5\overline{)44}$
3. $0.04\overline{)0.51}$	**6.** $0.7\overline{)70}$

Unit (5) Assessment

[1] Choose the correct answer:

(1) $2.3 \times 5.3 =$ ....
ⓐ 10.25 ⓑ 11.54 ⓒ 12 ⓓ 12.19

(2) $0.01 \times 1.7 =$ ....
ⓐ 0.017 ⓑ 0.17 ⓒ 17 ⓓ 1.7

(3) $0.55 \div 0.5 =$ ....
ⓐ 0.01 ⓑ 0.11 ⓒ 1.1 ⓓ 11

(4) 6,870 mm = ... cm
ⓐ 687 ⓑ 68,700 ⓒ 68.7 ⓓ 6.87

(5) $0.03 \times 1{,}000 =$ ....
ⓐ 3 ⓑ 30 ⓒ 3,000 ⓓ 300

(6) $0.2 \div 0.01 =$ ....
ⓐ 0.02 ⓑ 20 ⓒ 0.2 ⓓ 2

(7) 0.4×8 ....
ⓐ 32 ⓑ 0.32 ⓒ 3.2 ⓓ 0.23

[2] Complete:

(1) If $0.39 \times 0.1 = 0.039$, then $0.39 \div$ .... $= 0.039$.

(2) $0.001 \times 5.8 =$ ....

(3) 86.2 kg = ... gm.

(4) $0.87 \times 0.3 =$ ....

(5) 35.4 ml = ... liters.

[3] Find:

(1) Ahmed studied for 6.4 hours, Mazen studied twice more than Ahmed. How many hours did Mazen study? ....

(2) Using any strategy, find the quotient of: $37.95 \div 1.5$

UNIT

6

Theme 2 | Mathematical Operations and Algebraic Thinking

Unit 6 Numerical Expressions and Patterns

Photo Credit: Anton Petrus / Shutterstock.com

Concept (6-1)
Evaluating Numerical Expression and Analyzing Numerical Patterns

Lesson (1) Order of Mathematical Operations

Basic Order of Operations

1. Multiply or divide from left to right.
2. Add or subtract from left to right.

The Right Route Ali drives a bus route through the city. His stops follow the order of operations for evaluating the expression.

$$300.53 - 11.04 \times 0.2 \div 0.01 + 13.07$$

STOP 1	STOP 2	STOP 3	STOP 4
A. 300.53 − 11.04	E. 2.208 ÷ 0.01	J. 57.898 ÷ 0.01	N. 5,789.8 + 13.07
B. 11.04 × 0.2	F. 0.2 ÷ 13.08	K. 220.8 + 13.07	P. 79.73 + 13.07
C. 0.2 ÷ 0.01	G. 289.49 × 0.2	L. 289.49 × 20	Q. 300.53 − 233.87
D. 0.01 + 13.07	H. 11.04 × 20	M. 300.53 − 220.8	R. 57.898 + 13.07

Record the letters of the correct stops along his route to show the steps for evaluating the expression.

1. Stop 1: ________
2. Stop 2: ________
3. Stop 3: ________
4. Stop 4: ________

Lesson (2) Numerical Expressions with Parentheses

Grouping Symbols Evaluate the set of expressions. Pay attention to the grouping symbols and how they change the order in which the operations are performed.

1. $45.84 + 13.05 \div 5 + 20.32 - 1.14 \times 2.1$

2. $(45.84 + 13.05) \div 5 + 20.32 - 1.14 \times 2.1$

3. $30 \times \left[2.5 + \left(47.18 - 3.12\right) \div 0.1\right]$

4. $(30 \times 2.5 + 47.18 - 3.12) \div 0.1$

Lesson (3) Writing Expressions to Represent Scenarios

Writing Expressions For each problem, work with a partner to write an expression that matches the clues. Then, evaluate the expression.

1. Subtract 3.1 from 4.62. Then, multiply the result by 2.

2. Divide 93 by 0.3 and then add 114.7. After, divide the result by 5.

3. Add 30.4, 87, and 17.5. Then, subtract the result from 224.7. Multiply by 100.

Order Matters Use the order of operations to evaluate each expression.

1. $56.5 \times 2.3 - 15 + 12.7$

2. $90.7 + 116.6 \times 0.1 \times 2 - 20$

How Many Values? Use grouping symbols to create as many expressions with different values as you can.

1. $29.2 + 43 \times 0.01 + 15 \div 0.1$

2. $158 \div 2 + 6 \times 10.5 - 5$

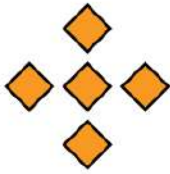
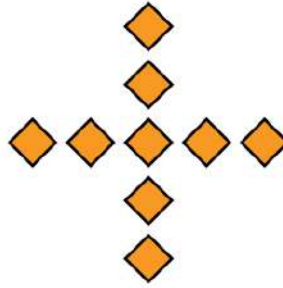
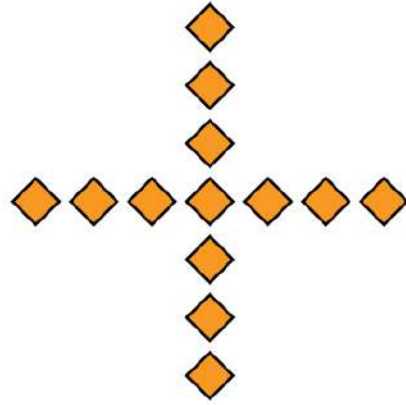
3. $57 - 11 \times 1.2 + 3.4 + 1.9 \div 10$

Writing Expressions For each problem, work with a partner to write an expression that matches the clues. Then, evaluate the expression.

4. Multiply 7.6 by 100. Next, subtract 34.3. Then, add 12.4. Last, divide the result by 0.1.

5. Find the difference between 10 and 9.27. Multiply by the sum of 54 and 46. Then, divide 1,168 by the result.

Lesson (4) Identifying Numerical Patterns

Tile Pattern Yaseen is laying floor tiles in the pattern shown. Each picture represents one stage of the pattern, and the pattern grows consistently between stages. Answer the questions about the pattern.

Draw Stage 4 and Stage 5. How many tiles do you think will be in Stage 10? Explain how you came up with your answer.

What's the Rule? Look at each table and determine the rule. Use a variable to write the rule.

1.

Input	Output
1	8
2	16
3	24
4	32
5	40

Rule: ______________________

2.

Input	Output
1	8
2	9
3	10
4	11

Rule: ______________________

Homework

What's the Rule? Look at each table and determine the rule. Use a variable to write the rule.

3.

Input	Output
3	12
6	24
9	36
12	48

Rule: ______________________

4.

Input	Output
5	1
10	2
15	3
20	4
25	5

Rule: ______________________

Choose the correct answer.

1. The rule of the pattern : 3 , 7 , 11 , 15 , ... is ______

   A. n − 4 B. n + 4 C. n × 4 D. n ÷ 4

2. The rule of the pattern : 3 , 6 , 12 , 24 , ... is ______

   A. n + 3 B. n × 3 C. n × 2 D. n ÷ 2

3. The rule of the pattern : 1 , 2 , 5 , 14 , ... is ______

   A. n + 1 B. n × 2 − 1 C. n × 3 − 1 D. n × 2 + 1

4. The rule of the pattern : 100 , 50 , 25 , 12.5 , ... is ______

   A. n ÷ 2 B. n × 2 C. n − 50 D. n − 25

Unit (6) Assessment

[1] Choose the correct answer:

(1) The next number in the pattern 4, 20, 100 is ....

ⓐ 5 ⓑ 50 ⓒ 500 ⓓ 5,000

(2) Which of the following equals to 9? ....

ⓐ $5 + 4 \times 3 - 2$ ⓑ $(5 + 4 \times 3) - 2$ ⓒ $5 + 4 \times (3 - 2)$ ⓓ $(5 - 4) \times 3 + 2$

(3) $14.5 - 2.4 \times 0.1 =$ ....

ⓐ 111 ⓑ 14.16 ⓒ 16.14 ⓓ 1.11

(4) To evaluate the $55.1 - 6.9 \times (4.2 + 5.8)$ we perform .... operation firstly.

ⓐ division ⓑ multiplication ⓒ addition ⓓ subtraction

(5) The mathematical expression that represent dividing 26 by 0.2 then add 12.14 and multiply the result by 0.3 is ....

ⓐ $26 \div 0.2 + 12.14 \times 0.3$ ⓒ $(26 \div 0.2) + 12.14 \times 0.3$

ⓑ $(26 \div 0.2 + 12.14) \times 0.3$ ⓓ $26 \div (0.2 + 12.14) \times 0.3$

(6) The rule of the opposite pattern is ....

Input	3	6	9	12
Output	6	12	18	24

ⓐ $n \times 2$ ⓑ $n + 2$ ⓒ $n \div 2$ ⓓ $n - 2$

[2] Complete:

(1) 3, 4.5, 6, 7.5, ... (in the same pattern).

(2) The mathematical expression that represent (add 4.5 and 7.3 then subtract 1.8 and multiply the result by 100) is ....

(3) $20 \div 5 + 3.29 \times 10 - 6.1 =$ ....

(4) The rule of the pattern (1, 2, 4, 8, 16) is ....

(5) The first step of calculating $89.5 + 7.2 \div 0.8 \times 0.1$ is the .... operation

[3] Find:

(1) If the price of pack of milk is 15 pounds, pack of juice is 7.5 pounds. What is the price of 6 packs of milk and 4 packs of juice?

....

Best Wishes